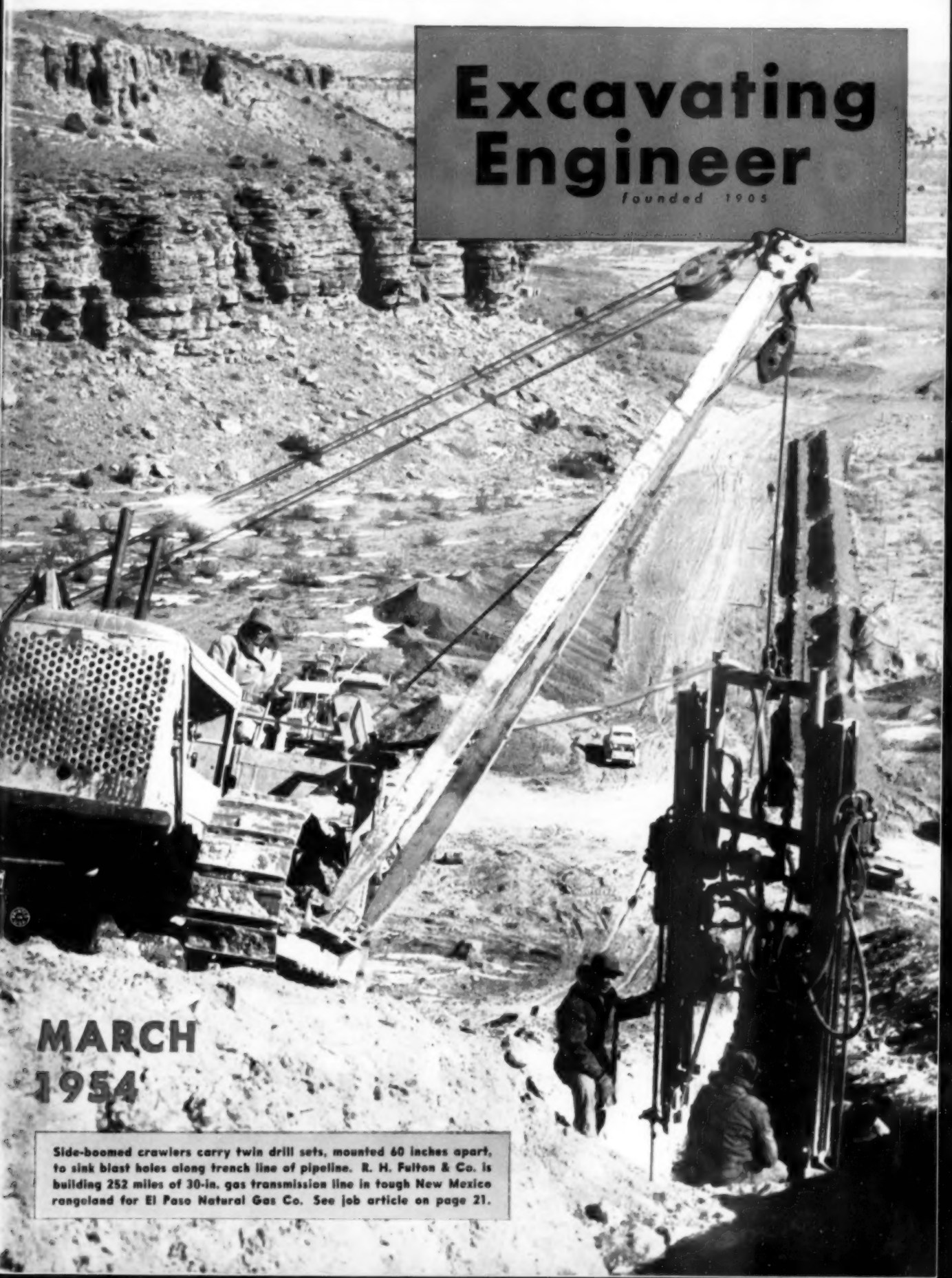
Excavating Engineer

founded 1905



MARCH 1954

Side-boomed crawlers carry twin drill sets, mounted 60 inches apart, to sink blast holes along trench line of pipeline. R. H. Fulton & Co. is building 252 miles of 30-in. gas transmission line in tough New Mexico rangeland for El Paso Natural Gas Co. See job article on page 21.

Tomorrow's Shovels

Bucyrus-Erie's progressive design brings the modern shovel front end to the quarry, mine, and large construction industries.

Only Bucyrus-Erie offers these features in front end equipment on heavy-duty shovels.

BOOM— Two section — light upper section, rugged lower section. No excess weight. Weight and strength concentrated where needed and close to center of rotation.

Lower boom section part of main machine, through twin strut connections to A-frame. Boom feet wide spread — no sway braces or cables. No boom jacking.

TYPE OF HOIST— Twin dual, single-part ropes, one attached to each side of dipper. Power automatically concentrated where needed on dipper lip to break through bank obstructions. No dipper bail.

SADDLE BLOCK— Cylindrical. Rubber cushioned against impact during fast plugging of swing. No binding with flexed dipper handles.

HANDLE— Single, tubular, one-piece, can rotate in saddle block. No handle twist possible.

CROWD MACHINERY— Located on revolving frame, close to center of rotation. Position reduces swing inertia. Accessible, protected.

TYPE OF CROWD— Quiet, positive, independent twin rope crowd and retract. Adapts itself to tubular handle rotation — low friction — less crowd power required.

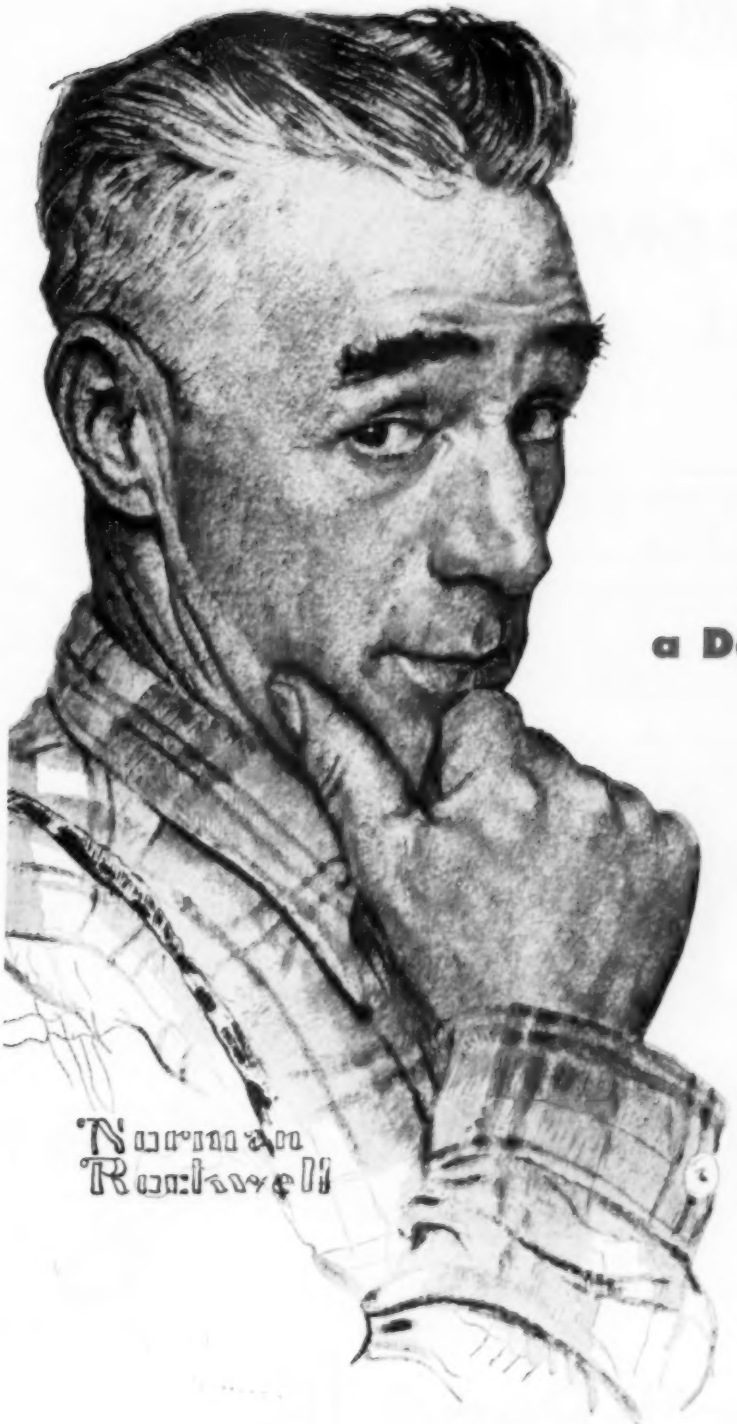
CONVERTIBILITY — Shovels fully convertible to draglines of the independent motor type — no operating clutches or brakes.

There are many more reasons why these modern Bucyrus-Eries with Ward Leonard Variable Voltage control are the finest heavy-duty excavators ever built. Get the full story today.

50L53C

BUCYRUS ERIE

South Milwaukee
Wisconsin



You?...

a Doubting Thomas?

IF YOU'RE a man who has to be shown, we're right in your corner. Just give Roebling "Blue Center" Steel Wire Rope one try . . . see for yourself how it saves time and costs you less on the job.

Two out of three wire rope users in excavating and construction prefer Roebling rope. Call the nearest Roebling office for a Field Man to suggest the best ropes for your purposes.

ROEBLING

A subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 721 N. CHEYENNE ST. • EXPORT SALES OFFICE TRENTON 2, N. J.

a FEATURE-STUDDED member of the Ingersoll-Rand CONTRACTORS' COMBINATION

FM-3 WAGON DRILL

use it with the sensational

GYRO-FLO ROTARY COMPRESSOR

● These time-saving, cost-saving features make this FM-3 Wagon Drill the most *efficient* mobile unit of its size ever developed. It combines maximum drilling power, flexibility for drilling in any position, and easy maneuverability.

The FM-3, used with longer-lasting Carset Jackbits and powered by a Gyro-Flo rotary compressor, gives you an unbeatable rock drilling combination. Write or phone for complete information.

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

ROCK DRILLS • COMPRESSORS • AIR TOOLS • DIESEL AND GAS ENGINES • CENTRIFUGAL PUMPS • VACUUM EQUIPMENT

Advertisers

IN THIS ISSUE

Allis-Chalmers Mfg. Co. 6–7
American Hoist & Derrick Co. 51
American Steel & Wire Div. 65
Aveling-Barford, Ltd. 4
Bethlehem Steel Co. 16
Blaw-Knox Co. 14
Bucyrus-Erie Co. .. Cover II, 50, 54–55, 68
Burch Mfg. Co., Inc. 67
Caterpillar Tractor Co. 17–20
Colorado Fuel and Iron Corp. 1
Columbia-Geneva Steel Div. 65
Drake-Williams-Mount 61
Easton Car & Construction Co. 15
Electric Steel Foundry Co. 59
Ensign-Bickford Co., The 8
Erie Strayer Co. 53
Euclid Div., General Motors Corp. ..... Cover IV
Forke Bros. 70
For Sale (Classified) 71
Foster L. B., Co. 57
General Motors Corp., Euclid Div. ..... Cover IV
Ingersoll-Rand Co. 2
International Harvester Co. 37–40
Jaeger Machine Co., The 53
LaCrosse Trailer Corp. 47
Leschen Wire Rope Div., H. K. Porter Co., Inc. ..... Cover III
LeTourneau-Westinghouse Co. 10–13
Macwhyte Co. 9
Northwest Engineering Co. 5
Owen Bucket Co., The 36
Phoenix Products Co. 61
Porter, H. K. Co., Inc., Leschen Wire Rope Div. ... Cover III
Roebling's Sons Corp., John A. 1
Sauerman Bros., Inc. 49
Tennessee Coal & Iron Div. 65
Unit Crane & Shovel Corp. 45
United States Steel Corp. 65
United States Steel Export Co. 65
Westinghouse Air Brake Co. 43

Excavating Engineer

founded 1905

CONTENTS

Volume XLVIII No. 3 **March, 1954**

Fulton Spreads Lay Tough Pipeline — by Ray Day 21

When R. H. Fulton's pipeliners placed 252 miles of 30-in. high pressure gas line up over New Mexico's Continental Divide in midwinter, malapai separated the men from the boys.

Hydraulic Crane Loads Wrapped Pipe with Care 31

Pre-coated and pre-wrapped pipeline joints can be easily damaged. Ted Hinton solved the problem with a truck mounted crane offering precision control.

Strip Mining Takes Hold in Britain — by Edmund Updale 32

Private contractors produce big coal piles by strip mining methods. High output draglines and loading shovels change some shaft mines to open pits, at Ewart Hill Deep.

News from the Field 36

British Industries Fair Scheduled for May 36
Safety Experts to Hold New York Convention 36
George W. Gagel Elected AED President 41
Frozen "Needle" Solves Chemical Injection Problem 41
National Constructors Elect Officers for '54 41
Name Vice-President 42
Safety Council Releases Foremen Training Film 42
Reishus Talks on Excavating 42

Equipment You Ought to Know About 45

Not in the Contract 64

New Trade Literature 66

Notes from the Manufacturers 69

COPYRIGHT 1954 BY THE EXCAVATING ENGINEER PUBLISHING COMPANY

Regular Subscription (payable in advance): 35 cents per copy, $3.50 a year; Canada and foreign, subject to publication policy, $5.00 per year. Special subscription: Upon written request on company letterhead this publication will be sent free of charge to companies, executives and supervisors engaged actively in excavating. Occupation of subscriber must be given for all subscriptions, paid or special. Right is reserved to refuse foreign subscription. Indexed by Engineering Index, Inc. Volumes available on microfilm.

Published Monthly by

THE EXCAVATING ENGINEER PUBLISHING COMPANY

South Milwaukee, Wisconsin, U.S.A.

E. M. HEUSTON, Publisher
W. C. VAN DYKE, Editor
M. B. JAEGER, Managing Editor
E. R. KRYMKOWSKI, Assistant Editor
H. A. BURKHARDT, Sales Manager
R. B. SAHS, Sales Representative
E. W. ARNDT, Art Editor

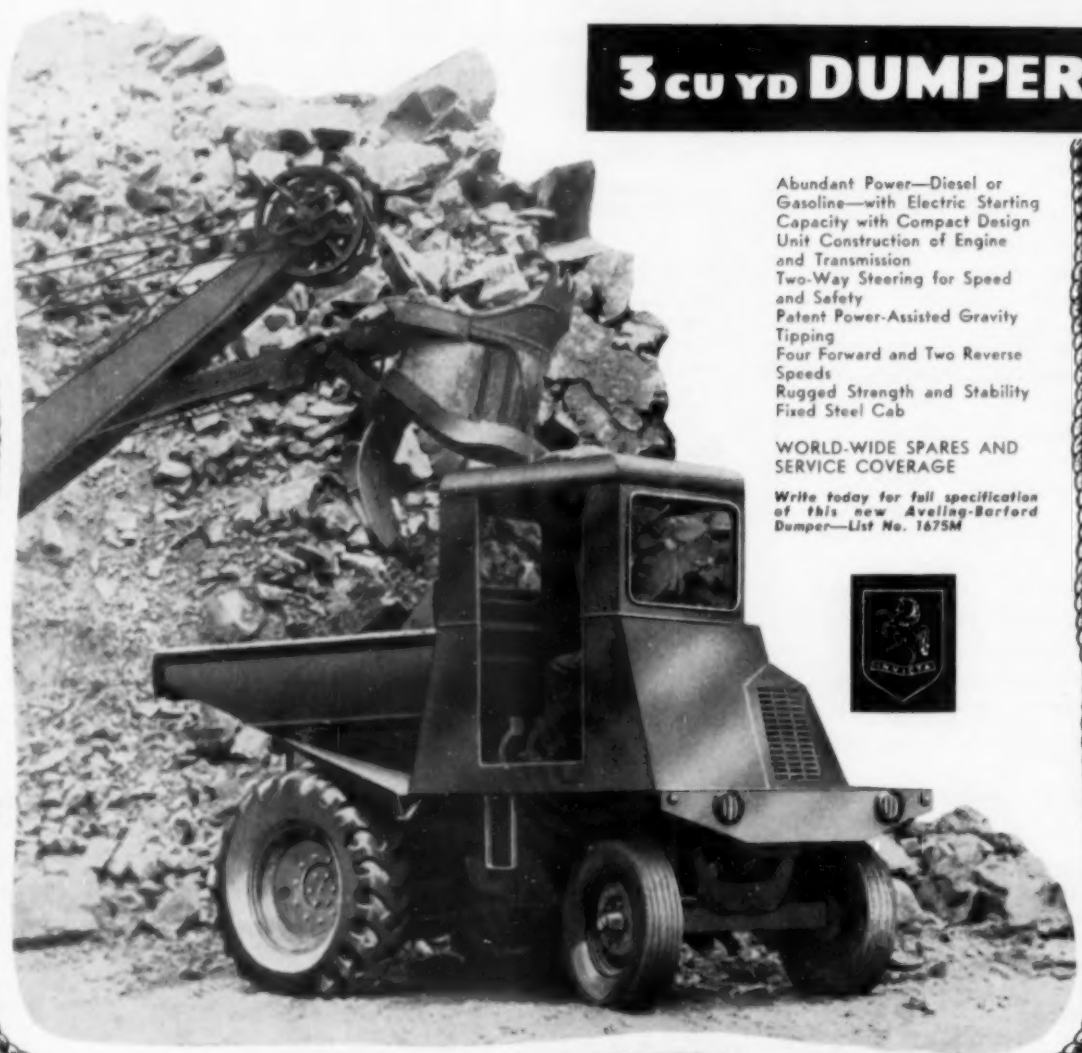
BPA Member

how big is a DUMPER?

The answer is the same as that for the length of a piece of string—it all depends; in the case of dumpers it all depends on the shovel size and the haul distance. If the shovel size is ¾ cu. yd. or less then the ideal dumper is the all-new Aveling-Barford type 'SF' of 3 cu. yd. capacity. Unbelievably low in price, this dumper has all the features that have made its bigger brother —the 4½ cu. yd. Shuttle Dumper— popular with quarrymen and contractors all over the world.

AVELING-BARFORD

3 CU YD DUMPER



Abundant Power—Diesel or Gasoline—with Electric Starting
Capacity with Compact Design
Unit Construction of Engine and Transmission
Two-Way Steering for Speed and Safety
Patent Power-Assisted Gravity Tipping
Four Forward and Two Reverse Speeds
Rugged Strength and Stability
Fixed Steel Cab

WORLD-WIDE SPARES AND SERVICE COVERAGE

Write today for full specification of this new Aveling-Barford Dumper—List No. 1675M

AVELING - BARFORD LIMITED GRANTHAM ENGLAND

The COMBINATION makes the outstanding TRUCK CRANE

THE FINEST CRANE

THE FINEST CARRIER

REMEMBER it takes *two* major pieces of equipment to make a good Truck Crane! A Feature that may look fine in the crane isn't worth much if you can't get it to the job when you want it — because of Carrier trouble.

You aren't buying a "Crane" and you aren't buying a "Carrier"— it isn't a type of drive or a method of control you want. You are buying versatility in material handling ability, high output and the maximum in mobility. That's what makes money in a Truck Crane. When you are figuring on a Truck Crane, weigh *all* the advantages of the unit as a whole. The Northwest Truck Crane has been designed to produce full efficiency with any attachment — Crane, Shovel, Dragline or Pullshovel.

Don't overlook Carrier details and don't be misled by selling statements that "carriers are all alike" and that "the same people build them". You will find other equipment may be often referred to as "A Good Crane" but Northwest is universally recognized as a leader for quality both in Crane and Carrier. We'd like to tell you in detail why and where the Northwest Truck Crane and Carrier are better.

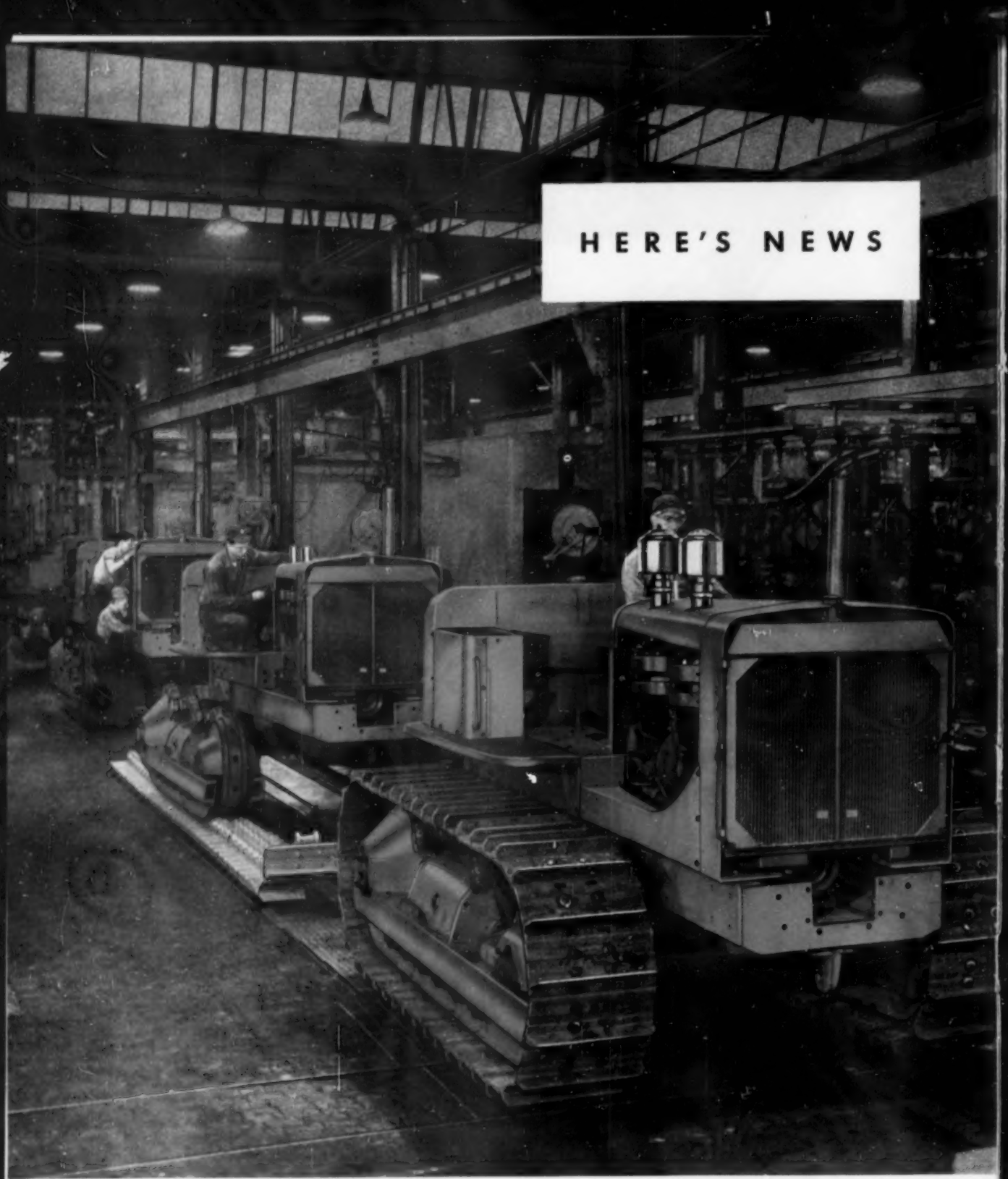
IF YOU'RE INTERESTED in a Truck Crane, Truck Shovel, Truck Dragline or Truck Pullshovel let a Northwest Man go over Northwest advantages and leave with you the new Northwest Catalog describing both Crane and Truck.

NORTHWEST ENGINEERING COMPANY
1506 Field Building, 135 South LaSalle Street, Chicago 3, Illinois

Has Your Shovel Stood the ROCK TEST

NORTHWEST

SHOVELS ● CRANES ● DRAGLINES ● PULLSHOVELS



They're here now! **28,000-lb. HD-15's with torque converter drive are already rolling off the assembly line.**

Allis-Chalmers Powerful HD-15 adds to its big work advantages

. . . now offers choice of two outstanding drives—

standard transmission with time-saving shift pattern,

or widely accepted hydraulic torque converter drive

From its introduction, the Allis-Chalmers HD-15 has set new standards in performance and long-life service . . . in a new size class. It combines outstanding strength and balance with plenty of power, plus a simplified, time-saving transmission that gives big work output. In addition, the HD-15 offers remarkable service simplicity, with features like unit assembly and 1,000-hour lubrication intervals for truck wheels, idlers, and support rollers. It has proved itself the kind of tractor required on today's jobs.

Now, hydraulic torque converter drive is added as optional equipment — an additional working advantage for the powerful HD-15. This advanced design drive was introduced by Allis-Chalmers in the world's *first* torque converter tractor nine years ago. This modern drive gets more done because it automatically provides the right combination of speed and pull every working minute . . . and hydraulic cushioning assures longer life for both tractor and auxiliary equipment.

Now you can choose the HD-15 with standard transmission *or* hydraulic torque converter drive. Either way you'll be getting the most advanced tractor in the business. Let your Allis-Chalmers dealer give you *all* the reasons why.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

TORQUE CONVERTER

Symbol of greater output, longer life.

"This Boy Scout stuff pays off!"

"I use the *square* knot to tie two pieces of Plain Primacord together when I want to lengthen the trunk line aboveground. It can be drawn up tight and won't slip back. But I never use *any* knot in a hole. It might hang-up the explosives when loading, and you don't want that to happen.

"A 500-ft. reel of *Plain* Primacord weighs only 9 pounds — it's easy to lay it out fast. You can use it in small or shallow holes, too.

"But when we go down deeper I want *Reinforced* Primacord. It has a tough cover, and greater tensile strength.

"When I'm handling those heavily reinforced explosives containers, or when I'm working in deep, ragged holes, I go for *Wire Countered* Primacord.

"And for river crossings—or where a field shot must stand a long time before blasting — I use *Plastic Reinforced* Primacord.

"If you want good results every time, use the *right* Primacord — and use it *right!*"

P-12

See your explosives supplier or write for information to

THE ENSIGN-BICKFORD COMPANY

Simsbury, Connecticut

Also Safety Fuse since 1836

PRIMACORD® *detonating fuse*

PROVED and APPROVED

Get long, low-cost service with

MACWHYTE

WIRE ROPE • SLINGS • ASSEMBLIES

In Macwhyte's complete line there are a thousand and one sizes and types of wire rope. Thoroughly lubricated and PREformed – they are engineered to give long, low-cost service on your equipment. Recommendations gladly furnished—ask for Catalog G-16.

For lifting and moving materials, there are hundreds of types and sizes of Macwhyte Round-Braided, Flat-Braided, Single-Part and Grommet Slings. Each is custom-made to meet your particular needs. Recommendations gladly furnished. Ask for descriptive folder 5308.

Macwhyte Safe-Lock Wire Rope Assemblies are made to order in length, strength and flexibility desired. Terminals are permanently attached to one or both ends. Recommendations gladly furnished. Ask for Catalog 5201.

MACWHYTE COMPANY
2903 Fourteenth Avenue
Kenosha, Wisconsin

Manufacturers of Internally Lubricated PREformed Wire Rope—Round-Braided and Flat-Braided Wire Rope Slings—Stainless Steel Wire Rope—Monel Metal Wire Rope—Aircraft Cable and Swaged Fittings—Safe-Lock Wire Rope Assemblies.

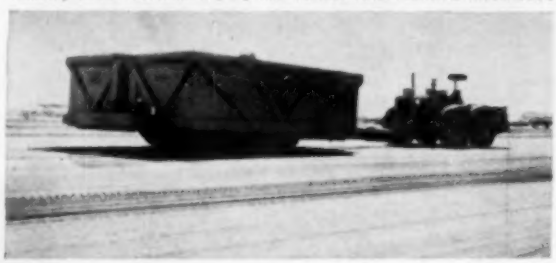
Mill Depots: New York, Pittsburgh, Chicago, St. Paul, Fort Worth, Portland, Seattle, San Francisco, Los Angeles. Distributors throughout U. S. A.

Advertisement

Pictures of the month . . . *by LeTourneau-Westinghouse . . .*

Haul over roads or open country—Four 35 mph C Tournapulls help speed dirtmoving for J. F. Fitzgerald Company on cloverleaf construction for the Boston-Fall River Expressway. 30° oscillating pivot (big picture) permits fast haul over rough ground without stresses and strains between prime-mover and scraper. Low-pressure tires let rigs drive over pavement without damage to surface (small picture). Fitzgerald gets additional value from his Tournapull prime-movers by interchanging the 16-yd scrapers with 18-yd bottom dumps. All trailing units use same tires, wheels, brake assemblies . . . thus reduce total machine investment.

Haul where trucks can't — When grades at their limestone pit near Ames, Iowa, got too steep for loaded 5-ton trucks, Ray Cook Construction Co drove in two 9-ton LeTourneau-Westinghouse rear-dumps. These units (with their high ratio of hp to wt) haul 9 yds of shale-clay overburden per load . . . complete 1250 ft cycles every 5½ minutes up same grades that stopped trucks.



Plenty of power — 186 hp Tournatractor develops plenty of drawbar pull to tow 200-ton rubber-tired roller. Designed and built by Shovel Supply Co, Dallas, compactor rolls new runway in Texas for heavy jet bombers and big transports. With low-pressure rubber tires on both roller and tractor, operator can cross runways, ramps, and aprons without damage to concrete.

Strips 66 pay yds per hr — Georgia Lime Rock Company works this D Tournapull 12 months a year to strip 3 to 30 ft of low-grade Fuller's earth. Because of its speed, one-man "D" alone uncovers enough lime rock to keep the plant busy. In typical operation, "D" loads 5½ bank yds in 25 seconds. Output averages 66 to 71 bank yds hourly over 1800 ft cycles.

Advertisement

. . . with performance reports from around the world

In hilly country — R. A. Farish, on 85,000 yd housing job south of San Francisco, takes advantage of downhill loading to heap 13 pay yds in his C Tournapull. On 1100′ cycles, "C's" instant-shift transmission enables operator to quickly select proper gear for steep grades. Four-wheel brakes provide ample safety margin.

Through mud and rain — J. B. Evans Contracting Company, Quitman, Mississippi, is using D Tournapulls to relocate 1.2 miles of U.S. Hwy 90 near Bay St. Louis, Mississippi. During a steady drizzle of rain, units kept moving in and out of soggy borrow pit, over soft wet fills, without pusher help. Complete 11,000′ cycles took only 7 minutes 50 seconds.

Effective three ways — Tournapull rear-dumps haul, doze and compact up to 500 tons of coal a day in this stockpiling yard in Malajor, India. Calcutta Electrical Supply Corporation, Ltd is using 2 of these 9-ton units to eliminate hand-labor problems at their power station. Totally inexperienced operators learned how to use the "push-button" controls within a few hours.

Turns in 27 ft width — Because of Tournapull maneuverability, tight quarters didn't slow this job at all. Hugh Boyle & Sons' 2 C Tournapulls turned around easily, non-stop on this 27 ft street in Washington, Illinois. Removing hard-packed clay and gravel to prepare roadbed for paving, loads averaged 14 pay yds. Cycle of 5000 ft took 10 minutes. Haul was over rough scarified blacktop of old road. For information on any tools on these pages, write LeTourneau-Westinghouse Company, Peoria, Ill.

Tournapull—Trademark Reg. U.S. Pat. Off., Tournatractor—Trademark Pic-611-G-c

Advertisement

Pictures of the month... *by LeTourneau-Westinghouse...*

Cheaper than tracks — Wagner Quarry's Tournatractor handles limestone stripping, stockpiling, odd jobs on 150 acres in Ohio. In 18 months (2000 hrs) of year-round work, unit has been 98% mechanically efficient. Says W. J. Sprow, General Manager, "It's cheaper and faster to run on rubber than on tracks. Our 1 Tournatractor has replaced 2 crawlers."

Licks swamp and sand — Sand and swamp hold no fears for Mike Stiriz of Patchogue, N. Y. His C Tournapull loads 14 pay yds of highly abrasive sand, has no trouble filling over swamp for extension of Sunrise Highway at Oakdale Station.

5,000 yds per day — Grading 150,000 yds for a ½-mile trotting track in Delaware, 5 C Tournapulls average 5,000 yds per day for the Brandywine Raceway Assn. Job Foreman says one Tournatractor-pusher (right) has kept all 5 Tournapulls going on 600 ft one-way hauls. When hauls are shorter than 600 ft, or material tougher than usual, a crawler-pusher helps out.

50 yards per minute — 2,500 pay yds of wet sandy loam per hour was the exceptional output that finished a 4,000,000-yd, 1,000-acre expansion of McGuire Air Force Base in New Jersey in 8 months. Ten 16-yd C Tournapulls like the one shown above, one 27½-yd Tournapull, and seven 17½-yd Tournapull-type rigs accounted for this 50-yard-a-minute production rate on 1,000 to 2,000 ft hauls. Contractor on the $3,500,000 job was Yonkers Contracting Co, a subsidiary of Edward J. Petrillo, Inc.

. . . with performance reports from around the world (cont'd.)

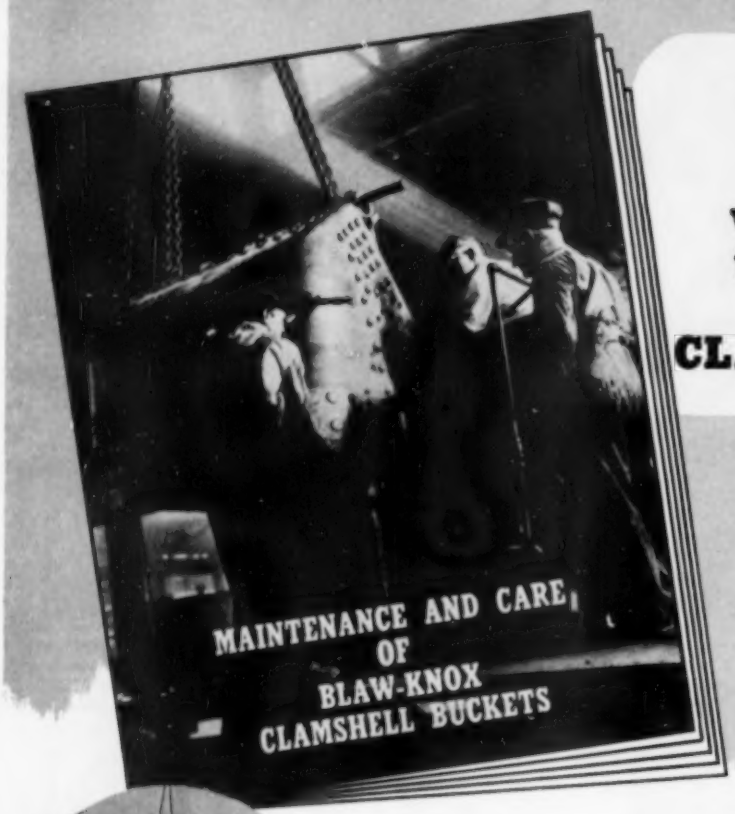
Look out below! — Relocating 4.2 miles of County Road 360 at Lookout Point Dam, Oregon, G. D. Dennis & Sons, Portland, used 3 D Tournapull rear-dumps to haul 265,000 yds (530,000 tons) of rocky earth. Dump was made quickly and safely from ledges 27 ft wide. Moving 6½ to 7 bank yds per trip, each "D" delivers 104 to 112 tons hourly on 1300 ft cycles. Says Supt Donald Dennis, "Machines did a fine job widening shoulders and constructing access roads. We're pleased with their maneuverability in close places."

2 rigs, 300 yds per hr — Hauling wet clayey sand over 2200 ft cycles, these 2 C Tournapulls moved 28 loads per 50-minute hour. Haul speeds, despite very soft footing, averaged 8½ mph. Owner reports 300 mile drive to job took only 10 hours actual road time. Units belong to L-S-M Construction Co, Ltd, Swan River, Manitoba. Project shown is 250,000 yd, 7.1 mile widening of Hwy 14 near Foam Lake, Saskatchewan.

At Garrison Dam — In 2 months these 3 C Tournapulls built a 60,000 yd, 2.2 mile access road to the dam and reservoir. On 600 ft hauls, each unit moved 19 loads (190 pay yds) of sandy loam per 50-minute hour. Owners, Tennefos Constr Co, Fargo, N. D., report tires shown have lasted 10,000 hours. Since purchase in 1949, only 3 of original 12 tires have been replaced.

Refuse put to good use — Many contractors operate sanitary landfill dumps like this for communities that do not own modern earthmovers. Here, Tournatractor dozes garbage and refuse into a gully in Nashville, Tenn. Later, rig spreads earth cover that eliminates odors, other nuisances of open dump. When fill is completed, city will gain a park or building site.

Proper maintenance makes GOOD buckets even BETTER



THIS FREE BOOKLET

will help you get the most out of a BLAW-KNOX CLAMSHELL BUCKET

- Instructions for Operators
- How to Increase Cable Life
- How to Reeve the Bucket for Maximum Efficiency
- Proper Use of Counterweights
- Do's and Don'ts for Long Bucket Life
- How to Straighten and Hard-Surface Bucket Lips
- 40 Pages Full of Bucket-Saver Information

Make Blaw-Knox Clamshell Buckets your first choice for low-cost rehandling, excavating or dredging. There's a size, type and weight to meet every requirement.

Here's a real BUCKET-SAVER booklet that explains in detail how to avoid the common bucket troubles that cause loss of time and money on the job. Among the many "bucket-saver" suggestions described and illustrated are those listed above, plus sections containing lubrication instructions and many other practical and economical hints for bucket care and maintenance.

Bulletin 2373 also explains the importance of using genuine Blaw-Knox repair parts which are especially designed to fit Blaw-Knox Clamshell Buckets. They contain *all* the carefully engineered features of the original parts to assure the efficient operation, low maintenance and long life you expect from Blaw-Knox products.

Write for your "Bucket-Saver" Booklet today!

BLAW-KNOX COMPANY
BLAW-KNOX
EQUIPMENT DIVISION
PITTSBURGH 38, PA.
Offices in Principal Cities

BLAW-KNOX

BLAW-KNOX
CLAMSHELL BUCKETS

EASTON®

another EASTON user gets the LOW-COST HAUL . . .

Easton TP Trailer — The standard EASTON pan-type trailer. Capacities from 14 to 20 tons. Used singly or in combination. Standard EASTON axle and fifth wheel. Durable doorless construction — no hoist or other moving parts. Works with the truck or tractor of your choice. The same bodies may also be truck-mounted. Built for the *low-cost haul* in mines and quarries.

Easton HE-20 Hoist — The standard EASTON electric overhead hoist for EASTON TP trailers and BP bodies. Visible stop-and-hold feed. Remote push-button control. Operated by the crusher attendant. Eliminates need for separate unit hoists. Hoist assembly as supplied includes electric winch, A-frame and hook, cable, and controls. Job-fitted for low-cost dependability.

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.

B-1060

Wire Rope at Work — Here's a load that required deft manipulation by three cranes working as a team. The absorption tower being guided into place was 98 ft long, 11 ft in diameter, and weighed more than 33 tons.

For the lifting and placing of this big, cumbersome load, the cranes were rigged with Bethlehem wire rope, Purple Strand grade, in the 6 x 25 construction; sizes, ⅞-in. and ¾-in. A typical assignment for Bethlehem rope, which so capably handles the toughest lifting and hauling jobs in every kind of industry.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

MINING • CONSTRUCTION • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

THE NEW CATERPILLAR D8 TRACTOR

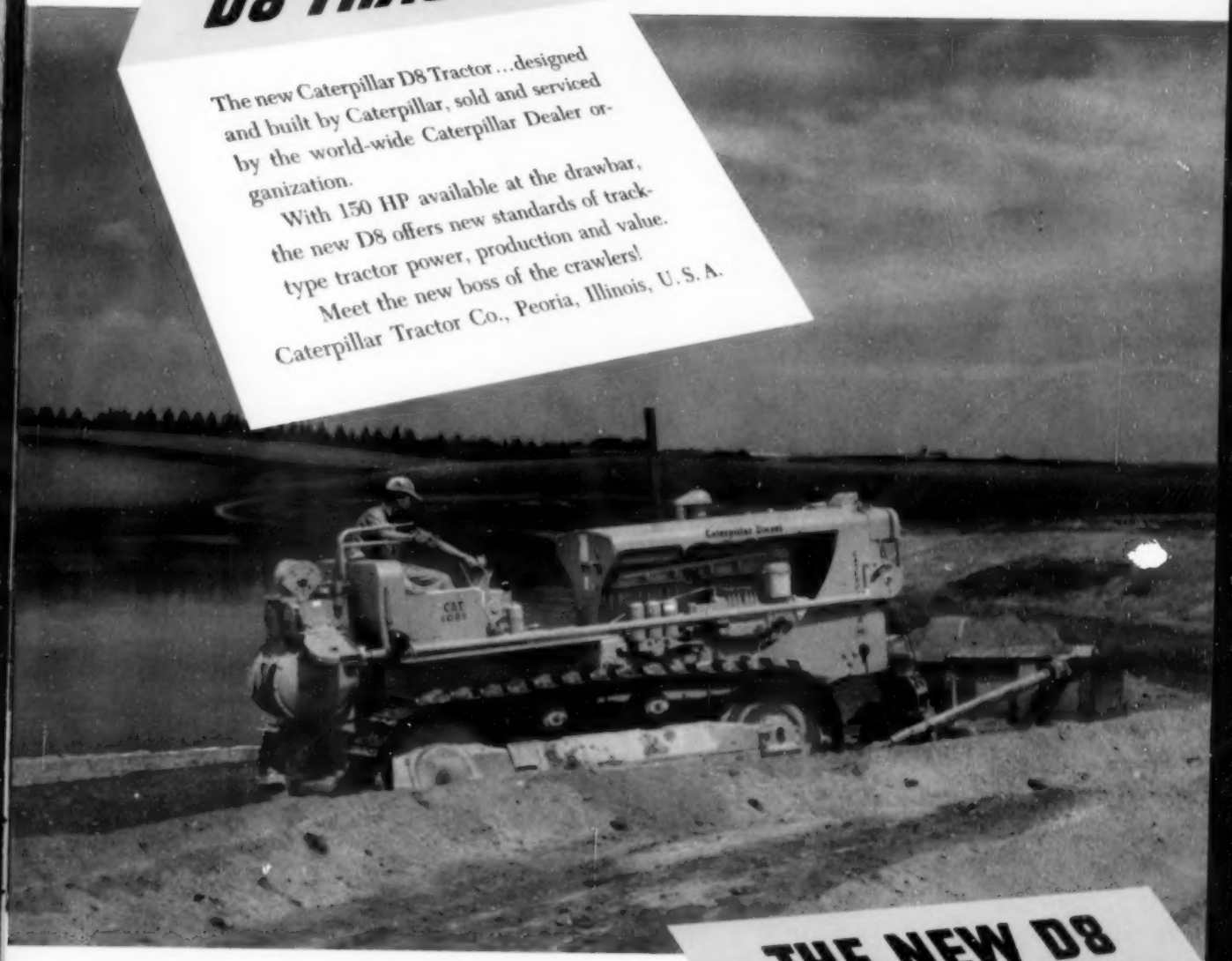
More Power... More Profit... More Production...

The new Caterpillar D8 Tractor...designed and built by Caterpillar, sold and serviced by the world-wide Caterpillar Dealer organization.

With 150 HP available at the drawbar, the new D8 offers new standards of track-type tractor power, production and value.

Meet the new boss of the crawlers!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



THE NEW D8 Boss of the Crawlers

- The new D8 has more drawbar horsepower...horsepower that works for you.
- The new D8 is compact...it retains the maneuverability needed in tractor applications.
- The new D8 is versatile...matched to Caterpillar-designed Bulldozers, Scrapers, Rippers and Pipe Layers.
- The new D8 is also a pusher...available attachments make this machine a powerful push tractor.

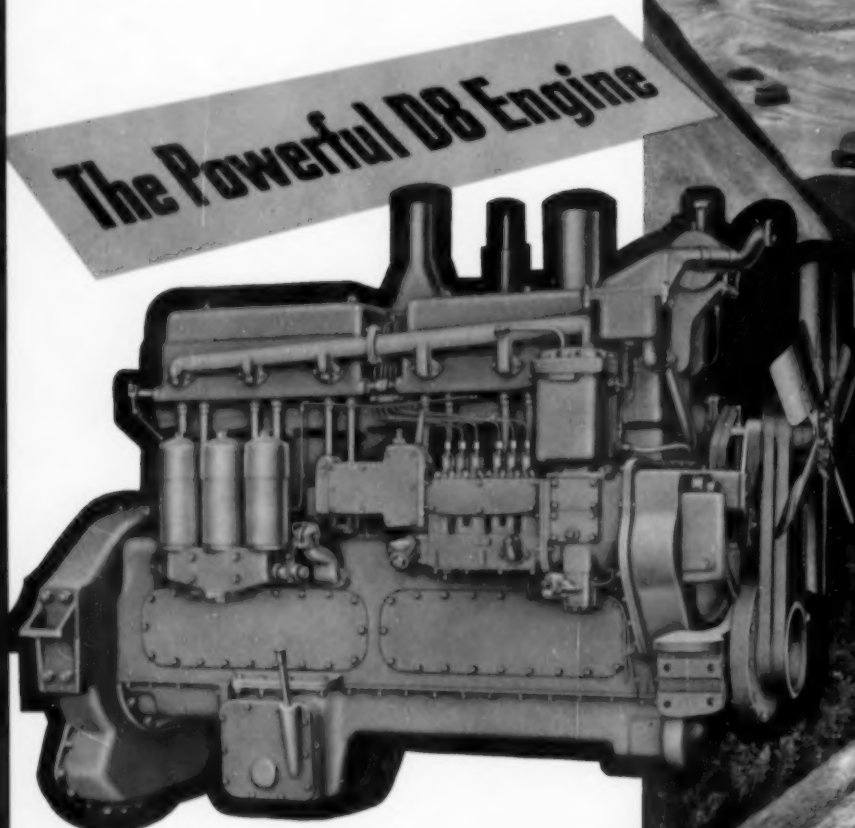
CATERPILLAR

REGISTERED TRADE MARK ®

150 Drawbar Horsepower Provided by Caterpillar D8 Engine

The new high performance of the Caterpillar D8 Tractor stems from the 185 HP, 1200 RPM diesel engine. Important new features, built into the time-tested and job-proved Caterpillar design, contribute to longer engine life and decreased operating costs as well as higher power. Some of these features are: new cylinder head incorporating valve rotators and hardened valve seat inserts, new camshaft, aluminum alloy pistons with stainless steel heat plug in the high temperature zone and a cast-in iron band for the top piston ring groove. A larger oil pump driven from the front of the crankshaft has an exclusive throttling valve pressure control which assures correct lubrication for all moving parts from the first turn of the crankshaft.

This powerful engine, with these and many other advanced features, is one of the big reasons why the D8 gives you more value than ever before.



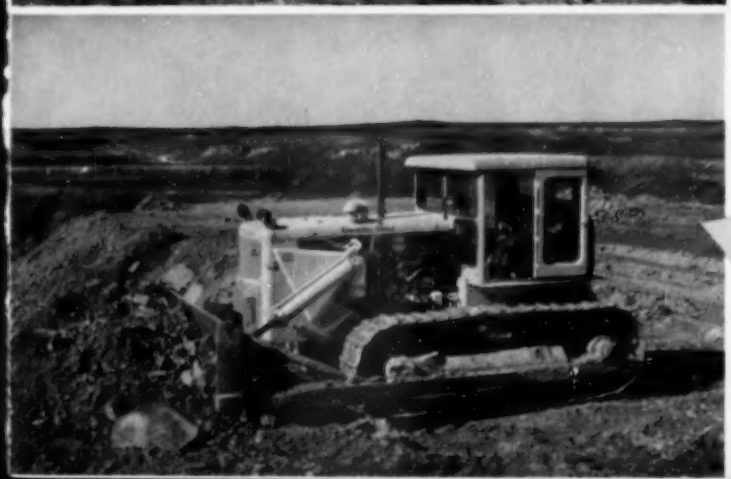
The Oil Clutch

Exclusive with Caterpillar Profitable to You...

Only Caterpillar offers you the long life and low maintenance cost of the oil clutch. The outstanding feature of this advanced clutch is that oil films absorb the friction and heat. The metallic friction surfaces do not come into contact until the last revolution or two before engagement. The clutch has its own lubrication system with gear-type pump and suction screen. The pump supplies oil under pressure to the hydraulic booster, which makes the clutch exceptionally easy to operate. Oil is also delivered to the inner diameter of the three clutch plates. This continual lubrication and cooling is the principal reason for much longer periods between adjustment and replacement than is possible with the conventional dry clutch. The oil clutch is another big reason why the D8 is a better buy.

THE NEW D8 GIVES YOU...

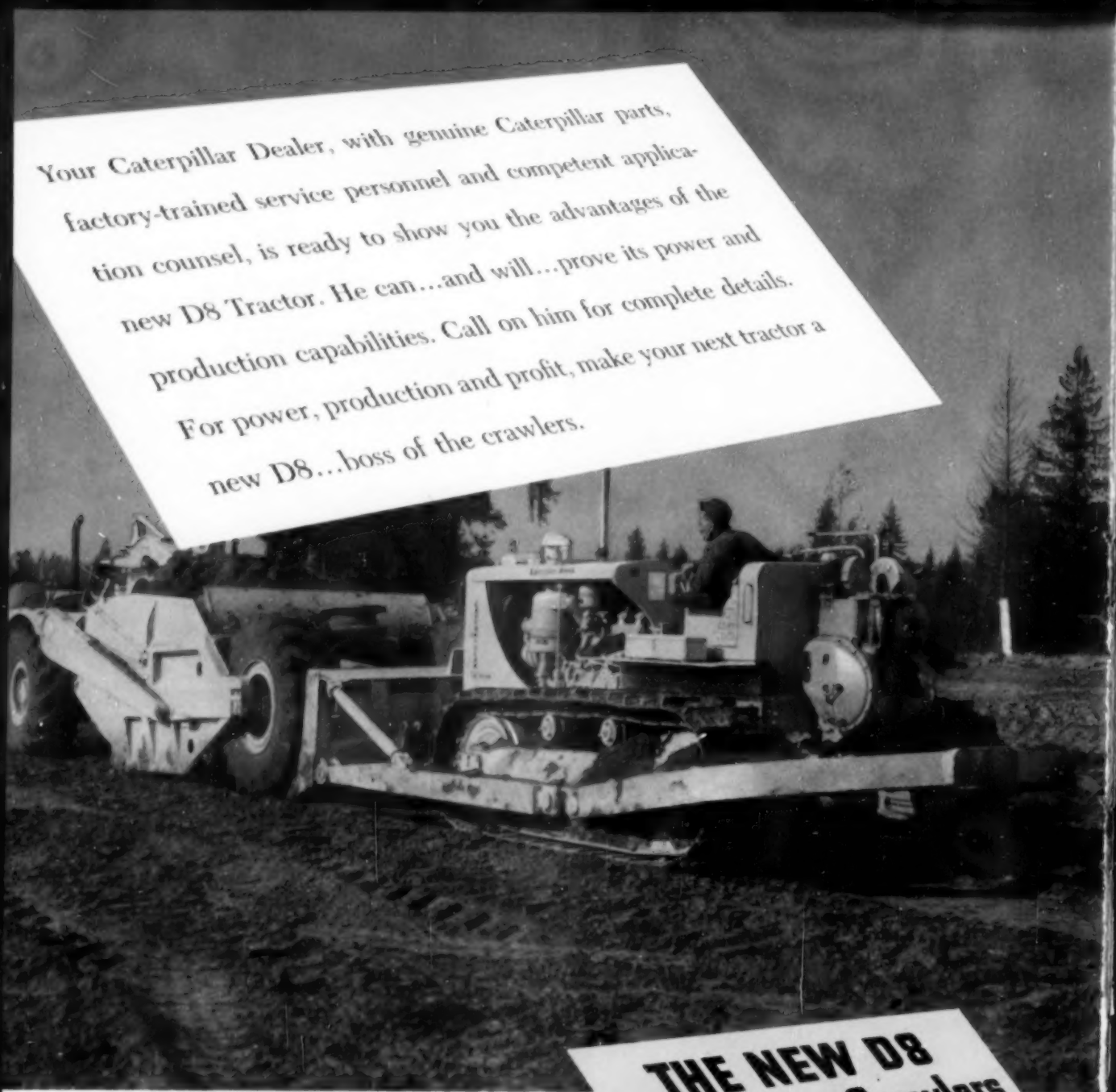
- **150 Drawbar Horsepower**
- **New Long Life Engine Features**
- **Exclusive Oil Clutch**
- **Flywheel Clutch Booster**
- **New High-Strength Frame**
- **"Hi-Electro" hardened track grouser tips**
- **Self-energizing Steering Clutches**
- **New, Large Air Cleaner**
- **Weight 38,155 lbs. (shipping weight)**
- **Compact Fuel Injection Equipment**
- **Double Universal Joint to Protect Clutch and Transmission Bearings**



Caterpillar

REGISTERED TRADE MARK ®

THE NEW D8 Boss of the Crawlers


Your Caterpillar Dealer, with genuine Caterpillar parts, factory-trained service personnel and competent application counsel, is ready to show you the advantages of the new D8 Tractor. He can...and will...prove its power and production capabilities. Call on him for complete details. For power, production and profit, make your next tractor a new D8...boss of the crawlers.

THE NEW D8
Boss of the Crawlers

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

The new Caterpillar D8 Tractor offers new highs in earthmoving production in push-tractor operations. The D8, equipped with No. 8S Bulldozer, heavy duty track roller guards, crankcase guard and tandem pusher frame, will cut your work cycles to a minimum.

Fast and maneuverable, the D8 applies a full 150 HP to the job of loading your hauling units in new record times. Push-loading, singly or in tandem, is provided to meet the conditions of your job.

PRINTED IN U.S.A.

MARCH, 1954 • founded 1905 Excavating Engineer

Right-of-way preparation in rough country was challenge. Three dozer-equipped Cats rough path for pipeline where it crosses watershed at top of mountain range.

Fulton Spreads Lay Tough Pipeline

by Ray Day

When R. H. Fulton's pipeliners placed 252 miles of 30-in. high-pressure gas line up over New Mexico's Continental Divide in midwinter, malapai separated the men from the boys.

FROM a high escarpment at the top of the Continental Divide near Grants, N. M., Spread Superintendent M. L. "Tubby" Boyd of R. H. Fulton & Co. looked out over 30 miles of rugged terrain with a frown on his face. It was 5° below zero. Wind howled around Tubby's cowboy boots. He pulled a worn Stetson down a little tighter over his weatherbeaten face.

Tubby didn't like what he saw. Two Gardner-Denver wagon drills were slogging it out in malapai rock, hanging practically in midair and supported by a winch line from a Cat at the top of the hill. A Bucyrus-Erie 22-B dragshovel, mucking out blasted rock, was also hanging from a tractor-anchored cable.

From his perch on top of the world, Tubby Boyd looked down over the other operations: pipe stringing, placement, welding. His experienced eye picked up a smoke signal 27 miles away on the horizon. That would be the dope gang . . . too far behind to suit the wiry veteran of many a pipeline fight.

"Up to now" he said, turning to an assistant, "I thought I was a pipeliner. But this makes me doubt it."

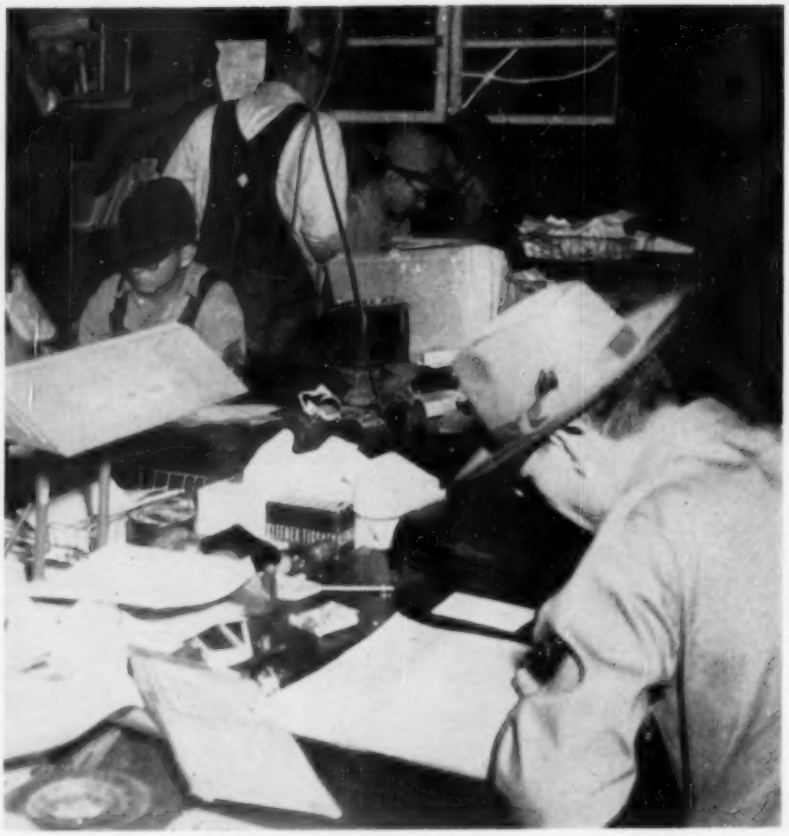
In saying those words, Boyd was merely paying tribute to natural conditions on one of the most difficult pipeline jobs he had ever tackled. He meant no personal disparagement either to himself or his crew. The 252-mile segment

of 30-in. high pressure gas transmission line which R. H. Fulton & Co. of Lubbock, Tex., is building for El Paso Natural Gas Co. is but one of several jobs currently under way on the 770-mile stretch between Plains, Tex., and Kingman, Ariz., western terminus of the line. None of the other sections are more difficult.

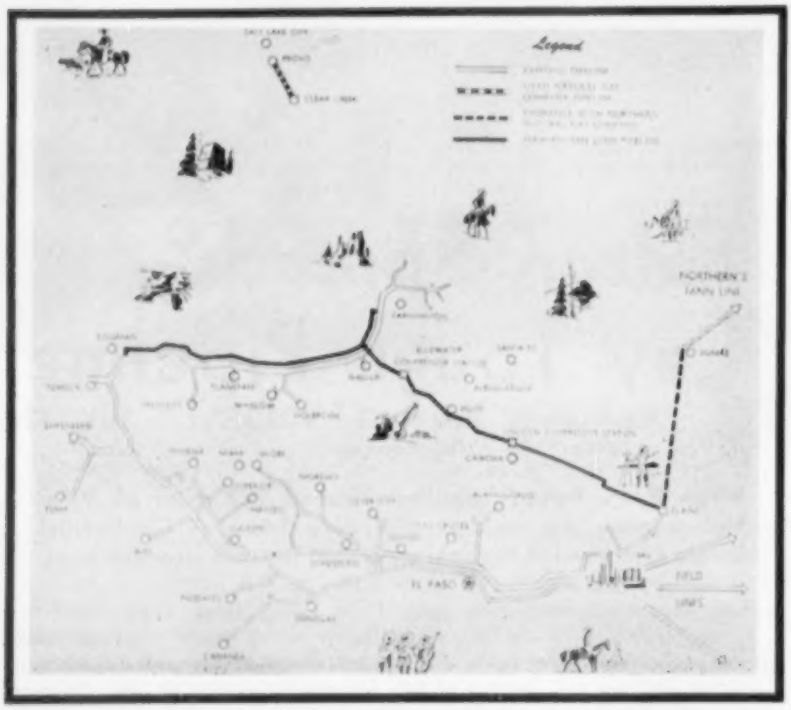
The Fulton job stretches from Corona to Gallup, N. M., and is being worked in two principal spreads. Tubby Boyd's spread is the one which drew a large share of the malapai, and placed crews on top of the Continental Divide in midwinter.

The background, purpose, and conception of the big gas line forms an important chapter in the economic development of the west and southwest. The line also has a distinct link with the past because it passes through ancient lands which may contain remains of Folsom Man, dating back 10,000 years. More detail on these interesting sidelights will follow later in this piece.

To a layman's eye, Tubby Boyd's organization is similar to any pipeline spread. The 40-ft. pipeline sections are unloaded at rail points and can be seen on trucks as they are transported to the job. Then come the drilling crews, powdermen, ditching machinery, pipe stringing crews, welders, pipe cleaning machinery, the dope gang, and finally the backfill and cleanup equipment. In some places there are intermediate steps, such as the earth cushioning crew, which works in rocky sections to give the pipeline a firm bedding away from jagged rock edges. There is a scavenger wagon which picks up old prestone cans, debris, oil drums, junk, and the like. But it is usual for a pipeline spread.



Pipeline field offices, like Tubby Boyd's are not long on looks but terrific amount of administrative work roughly clad clerk's turn out is compensation well worthwhile.



Map shows major extensions to El Paso Natural Gas Company's basic system. R. H. Fulton's contract called for 252-mile segment of gas line from Corona to Gallup.

Tough Pipe Country

To an experienced pipeline superintendent, Tubby's terrain makes for hard-luck pipelining. There is more rugged country in North America, but engineers are not as a rule routing pipelines through that terrain.

Boyd's spread passes through high rangeland, both privately and Indian owned. There are long stretches of solid rock, with deep gulches to cross. In ancient times, the lava-capped country eroded, leaving sharp, high escarpments which drop practically straight off into the valleys below. The pipe foreman was not long on the job before he found a 49° bend, which took four joints in the making.

There are other factors, too, all of

Bucyrus-Erie 22-B dragshovel and Northwest 25 backdigger make cut for pipeline trench through high country back in rangeland.

which play important roles in organizing for such a spread. Zero temperatures and below are common in winter in the 7,000-ft. high country. This article was covered in 10-below-zero weather. At that temperature, storage batteries drop better than one third of their rated power. Engine compression drops away at that altitude, and there is a loss of performance. Malapai drilling and shooting is something everybody remembers who tackles the assignment, but at 7,000-ft. altitude the compressors gulp for something to compress.

Terrific Equipment Upkeep

Equipment upkeep on a job like this is terrific.

Realizing these things, the experienced pipeliner looking over Tubby Boyd's spread is somewhat envious of the soft-spoken little Texan's ability, for in the various operations are found the answers to all these conditions.

The thing which Boyd has not been able fully to control are the extremely spotty formations in his spread. In a one mile section, for example, eight types of hard malapai were found, along with some topsoil and dirt that an ordinary trenching machine could dig. The top of the Continental Divide contains some of the most topsy-turvy geology in North America, and it has been absolutely impossible to do what every good pipeliner likes: to keep the spread closed up to within not more than six miles, and to move across country at the rate of not less than a mile a day.

"We just haven't been able to cut it," said Boyd. "There are just too many special problems.

"You're going good in dirt and wham, you hit malapai. You whip the malapai problem and get things strung out and bang, you hit an 8-ft. ditch through some Indian's farm where irrigation water floods your trench. Frankly, we just haven't been able to hack 'er.

"We sometimes get strung out for 25 miles because of these conditions, but by the same token, we make a mile or more a day when we can. I'm not disappointed, because I knew this one would be rough."

Ford pickup crosses top of ridge up on Continental Divide. Toughest job roads posed no problem for pickups serviced with Marmon-Herrington alterations to 4-wheel drive.

The first construction step in Tubby Boyd's operation consists of preparation of the right-of-way for pipeline equipment. Through the high country of his spread, the ground is dotted with small cedars, pinion pines, and other growth native to the high country. There is no saw timber, however; nothing which calls for labor crews or power saw equipment. It is strictly a job for tractors and dozers.

Right-of-way preparation has been geared to one mile-a-day performance by assigning six Caterpillar D8's with Caterpillar dozers to this work. Right-of-way clearance varies from 40 to 60 feet, and it is the dozer's job to smooth this terrain so that other equipment also can get in. Naturally, in some of the more precipitous terrain, it is impossible for pipe stringing trucks and that kind of machinery to get in, but in such places the pipe sections can be dragged in by tractors.

The right-of-way crew and its equipment is governed by survey stakes, which are put in by El Paso Natural Gas Co. crews. These crews run a profile over the undisturbed terrain, and at the same time set center-line stakes every 200 feet. Points of intersection also are staked and located permanently by outside reference points. Taking off from these stakes, the right-of-way foreman then sets his own side limit stakes, and plans his course of work so that a good smooth accessway will be created.

Clear Right-of-way

After the small trees are rooted out by the dozers, they are stacked at favorable intervals, and burned. No dynamite has been necessary for the uprooting of these trees. The dozers also have to do a considerable amount of rough grading. Where mountainsides are sharp, it is necessary to bench the material down, often involving cuts of five feet deep or slightly over. In a few cases it has even been necessary to augment the dozer work by drilling and explosives.

Right-of-way clearing also includes the preparation of certain haul roads

Tractors cleared the steep right-of-way so other equipment, like Gardner-Denver compressors and air drills, can move along.

One of two Cleveland 320 trenchers on N. M. pipeline job cuts ditch through ancient mud seam. Machine can dig a mile per 10-hour shift in good ground conditions.

into the tough areas. Built by dozers, they are necessarily rough, but they are pioneered sufficiently well so that other equipment can get in later on. On all but the toughest steep places, the right-of-way operation has maintained its mile-a-day schedule with the precision of a military operation.

Excavation for the pipeline trench is the next construction step, and represents one of the toughest equipment assignments which many of the men on the spread have ever seen. Men like Walter Lewis, ditch superintendent, say, "I've been pipelining since 1917, and this one is really the toughest."

Roughly between 60 and 70% of the ditch excavation assignments is in rock of one form or another. Specifications call for a minimum of three feet of cover in dirt sections, and two feet of cover in rock excavation. The trench therefore varies from 5½ to 8 feet deep. The 8-ft. depth is required in irrigated farmlands and other lands where irrigation systems will be developed later on. It is necessary in these areas, of course, to put the pipeline down to a depth where it will not interfere with future irrigation ditches.

The bottom of the ditch in all cases is 42 inches wide.

Rock Variations

A geological study which was made within a 1-mile section near the top of the Continental Divide illustrates the topsy turvy variation in rock patterns. Distinct specimens picked up and identified included the following:

1. Lava flow rock, fractured and chambered, and quite porous.
2. Lava rock, lighter in weight, but more porous. Holes drilled in this formation will fill with drill cuttings while an adjacent hole is being put down. It must be blown with an air pipe before powder can be loaded.
3. A hard, cemented breccia malapai,

A Bucyrus-Erie 22-B dragshovel cleans malapai rock from trench. Tractor-type crawlers give the rig better grip on the slope.

containing hard pebble intrusions. Extremely hard to drill.

4. A hard, dense, clear mineral springs deposit.

5. Hard, massive sandstone, so tricky to drill that a blow pipe must be used to get a full hole.

6. Hard, abrasive, massive ledge parent rock.

7. A considerably softer breccia cement, particularly liable to burn off drill bit gauges.

8. A mineral springs deposit, interspersed with mud balls.

9. A red, soft, crumbly sandstone.

10. Yellow ochre-type mud in the first stage of rock formation.

11. A red ochre-type mud, similar to the previous classification.

For the softer formations which do not require drilling and shooting, Boyd has assigned a Buckeye Model 51 trenching machine and two Cleveland 320's, equipped with conventional H&L teeth, and endless bucket chain. The Buckeye 51 is assigned ordinarily to long runs, where it can be set up and worked for days across country. The Cleveland 320's are assigned to shorter ditch work, where moving in, maneuvering, and leaving the job must be done on short notice. The 320's are particularly applicable in crossing small farms, corners of land, and so on. The 320's also are used to strip away the upper softer portion of a trench which, below, is part rock.

Row of powder holes outlining pipeline trench is hooked up with Primacord detonating fuse for one of big blasts on job.

Each of the trench excavators of this type are capable in good digging of one mile per 10-hour shift apiece. If so much malapai were not in the way, that combination alone would be more than enough machinery for trench excavation. These trench excavators are being used to good purpose in the ochre mud formation, in some softer caliche, and of course in all the dirt areas.

The big assignment for trench excavators is malapai rock, and a drilling and air system has been assigned which even in this almost impossible material is capable of handling a mile a day. This system consists of four big Gardner-Denver 600-cfm portable air compressors, six Gardner-Denver 500 cfm compressors, and 20 Gardner-Denver wagon drills. The wagon drills are all twin mounted on special rigid racks, which put the machines exactly 60 inches apart. These twin drills are then carried on a side boom of a Caterpillar D4 tractor. There are 10 such units, some of which work singly and some of which work in pairs.

Use Tungsten Carbide Bits

Timken steel and Timken drill bits are being used. For all malapai drilling, Timken tungsten-carbide bits are being used. Experiments conducted in hard malapai showed that an ordinary rock bit could be burned up completely in only one 5-ft. hole. The tungsten carbide bits often last as high as 150 drilling hours, and give from 800 to 1,200 feet of drill footage. Through a process of trial and error, a sucessful method of drilling the tough malapai has been worked out.

The drill holes are put down about six inches from the edge of the ditch, and are spaced exactly 30 inches apart by means of the 60-in. drill mounting on the Cats. Both edges of the ditch are drilled and the 30-in. hole centers are staggered on opposite sides of the trench. As a general rule, the tungsten carbide bits are used until the carbide inserts wear down to the point where the bits are worthless, and they are then discarded. No bit sharpening routine has been used.

The most successful powder technique consists of a barrel loading the holes with DuPont No. 1 gelatin, Red Cross 40, and DuPont 60 gelatin-type powder, tamping the material from a point 18 inches below grade line to within 18 inches of the top surface. If the formation consists of hard caliche, up to a half mile of ditch can be shot instantaneously by hooking the holes together

Preceding stringers. Northwest clam balls out caving ditch which was result of irrigation water staying close to surface of field on Indian's farm.

in series with Primacord detonating fuse. Malapai, however, is extremely difficult. It is literally full of porous holes, seams, caves, and fissures. The explosive force of powder tends to dissipate rather than to break up the formation. The technique here, which has been most sucessful, consists of using DuPont millisecond delays, which carefully space the explosion of the various holes a millionth of a second apart. This has given satisfactory breakage where other methods failed.

Blow Pipes Clean Holes

Of interest to powdermen is the tendency for many malapai formations to fill with rock dust from an adjacent hole in a matter of a few minutes. For this reason, all powder loading is done with the help of blow pipes, which clean out each hole to the solid rock walls, and in addition, powder loading is closed up tight against the drills. The shots are fired by an ordinary blasting machine.

Immediately after the shots are pulled, the top of the swollen and broken material is leveled off by a dozer, so that backdigger equipment can move in and begin mucking out the rock. It is a brutal digging assignment at best. Dragshovel equipment includes three Bucyrus-Erie 22-B's with ¾-yd. dragshovel buckets, and five Northwest 25 backhoes, also equipped with ¾-yd. buckets.

Backing up along the ditch line, these machines rip out the broken material, and discard it to a spoil bank along one side of the trench. The spoil bank is thrown up in such a manner that it will not interfere with one side whose access must remain clear for pipe stringing, welding, and the other operations to follow. The broken rock is quite abrasive, and tooth points often must be replaced every three to four shifts. Even so however, the machines will average from 600 to 700 feet a day in full depth trench.

By using almost one pound of powder per cubic yard of rock, Boyd's spread had eliminated all but a negligible amount of secondary drilling and shooting. An average day's work by each of the machines on this phase represents about 1,200 cubic yards moved.

Under the contract arrangement, the 30-in. diameter steel pipe with .335-in. walls was furnished by El Paso Natural Gas Co. This pipe, which is able to operate at pressures up to 1,000 psi, was rolled by A. O. Smith Co. of Milwaukee and was delivered by railroad cars to

Welders working with pipe stringing and installation crew quickly join sections together with stringer bead. Three-hundred ampere Lincoln arc welders do the work.

It won't be long before this section of 30-in. gas line will be put to bed. Pipeline ditch and backfill are ready as welders near end of line put on final filler beads.

Assembled 30-in. pipeline is being cleaned, coated, and wrapped, as Caterpillar tractors with side boom guide operation.

various spurs along the route of the line. The Santa Fe Railroad runs through that part of New Mexico.

Contractor Trucked Equipment

From the rail points, all trucking to the job site was done by contractor's equipment, which included eight Ford F-750 stringing trucks. When these trucks arrived, they were unloaded by a Caterpillar D6 with a Trackson side boom. In many places, where it was impossible to get the stringing truck in, two D6's with Trackson side booms also were used to back string the sections. Some of the places were incredibly tough, and it was necessary here to drag the sections up the sides of steep slopes by main strength and a winch line.

Following so closely behind that it was practically a part of the stringing operation was a bending crew. The job of this crew is no easy task, because many of the dropoffs are steep, and the curves are tricky. Some of the bends, like the 49° puzzle, are complicated indeed.

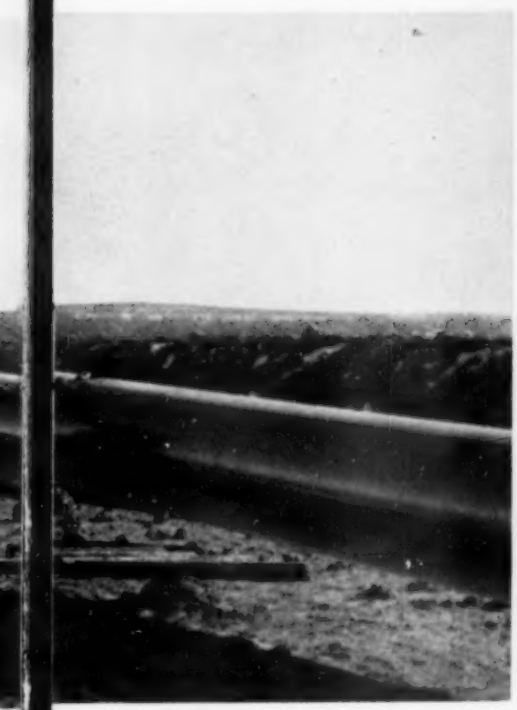
Using a Cinch hydraulically-activated pipe bender, the crew has made these bends sucessfully without pulling the pipeliner's No. 1 faux pas: buckling a pipe wall in the process.

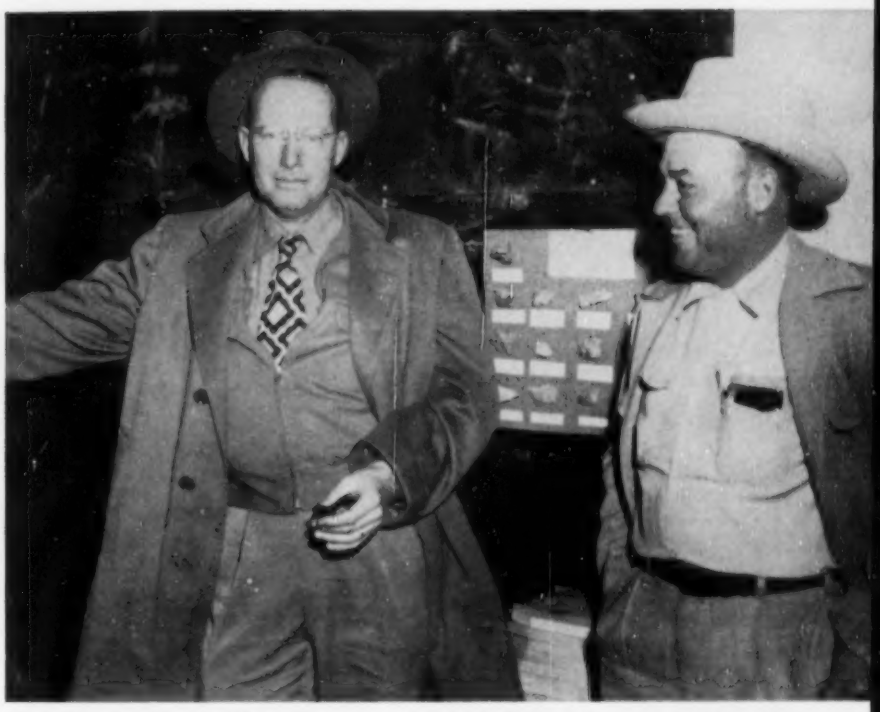
From its position in the cleared right-of-way alongside the ditch, the next step is pipe welding. For this operation, Boyd has a big fleet of 22 Lincoln arc welding machines, including 300-amp. machines for the hot pass and stringer beads, and 200-amp. machines for the two bell hole welds. Three Lincoln welders are mounted together on a set of Athey halftracks, and the whole unit is towed by a Caterpillar D4. On this job, Fleetweld No. 5 rod is being used on the stringer bead, with Lincoln Shield Arc 85 on the stringer bead and two filler beads.

Approximately 30% of the welded joints are being X-rayed to check on welding performance.

The welders are strung out, of course, so that the men who make the stringer bead work just behind the make-up crew. These men do nothing but weld stringers. Welding crews which follow specialize in the hot pass and fillers. When the 40-ft. joints have been connected by this method, long sections are lowered in by tractors and side booms. All told, Boyd has about 30 tractors on his spread, including both Caterpillar D8's and International TD-18's. The Internationals are equipped with Su-

Ditch Superintendent Walter Lewis, on left, stopped his Ford pickup for few minutes to coordinate some of his work with that of Sam Parker, foreman of right-of-way crew.





General Superintendent Clark Williams, on left, and Tubby Boyd, spread super, appear pleased with job progress at end of ¾-mile day in tough malapai at 10° below zero.

perior side booms, while the Cats are equipped with Trackson pipe layers.

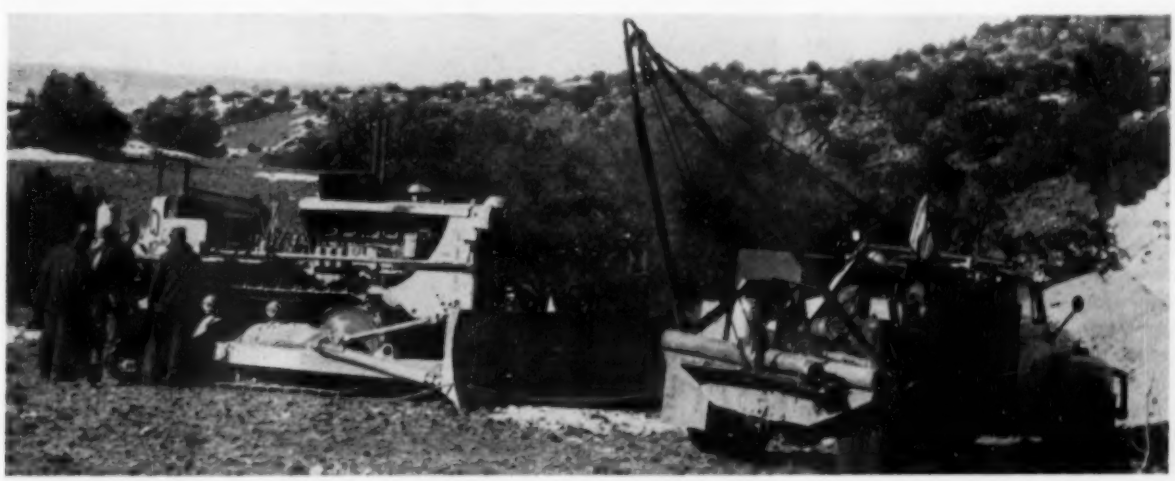
After its field assembly, the pipeline is being protected from the elements for many years in the future. The line is first gone over by a Crose cleaning machine, which removes all rust, dirt, and mill scale clinging to the sides of the pipe. Immediately following the cleaning machine is a prime coat of asphalt and coal tar material, which leaves the line glistening. Following close behind this operation is a Crose dope machine, supplied by Crose and Littleford heating kettles, which puts the final protection on the pipe. It consists of a coat of asphalt and coal tar enamel, followed by a layer of spun glass paper wrapping, which soaks up some of the coal tar.

Look for Holidays

A spark detector also follows to locate any holidays or bare places still remaining along the line. If a spark of electricity can get through that coating, the spot is marked and repaired by hand by the man who follows the dope machine. The pipe is then ready to be lowered into the trench by side booms, and the occasional field joints at intersections with existing utilities are welded in the trench, tying the long pipeline runs together. In these cases, the pipe and dope and outer covering are applied by hand.

The final step of the operation is backfill, which on this spread is shoved in by two Caterpillar D7's and one D8, with dozers. Although the backfill material is replaced in uncompacted form, the top is rounded gently to leave the work area in as good a condition as it was before the pipeline went in.

Two Caterpillar-mounted Traxcavator front end loaders also work with



Maintenance is handled in field by repair trucks like this one, and crew of 5 heavy duty mechanics and 3 truck mechanics.

Pipe stringing crew rapidly unloads a Ford F-750 stringing truck of pipe which was rolled by A. O. Smith Co., Milwaukee, Wis.

the backfill crew, and these machines are called on to place earth padding over the trench bottom where jagged rock excavation has been done. There are two No. 12 Caterpillar motor graders assigned also to the project, and their job is a final dressing and polishing of the right-of-way to leave it in good condition. These machines also do an enormous amount of public relations work by making every attempt to leave farmers' roads in better shape than when the crews moved in.

The servicing, repair, and upkeep of such a far-flung spread of equipment was one of the principal keys to progress, and the fact that it is being handled without too much trouble is a tribute to the skill of job mechanics, and to the service departments of distributors in the vicinity.

Routine preventive maintenance consists of a combination of good operation and regular visits by mobile Alemite grease truck units. Every piece of equipment is being lubricated at least once each 10-hour shift, and engine oil is not run more than 75 hours. When machines work in especially isolated locations, where it is impossible to get a fuel truck in, hand-operated grease guns are maintained on the unit. A 100-gallon sled-mounted fuel tank is also available, so that the sled can be serviced if necessary by the fuel truck and then pulled by tractor to the equipment working back in rough terrain.

On the job repairs are being made by a crew of five heavy duty mechanics and three truck mechanics, who work like the men on the rest of the job—seven days a week, 10 hours a day. One mechanic, a helper, and an oiler are assigned to routine service work and special repairs on the night shift. The balance of the force is assigned to the day shift.

Crawling along, sometimes slowly but always surely, the big pipeline on Boyd's spread is moving ever westward, and by the time this reaches print he will have dropped down from the top of the world and will be working on the west slope, toward Gallup, where the snow will melt and flow toward the Pacific Ocean.

Boyd's spread is under the general

Continued on page 60

Structure excavation is handled by a Northwest backhoe. Point was near US 66 where it was necessary to divert irrigation canal for short time until pipeline could pass.

Coated and wrapped 18-in. pipe moves on rubber-tired rollers which protect surface. Padded ramps guide pipe to place in yard.

Hydraulic Crane Loads Wrapped Pipe With Care

Pre-coated and pre-wrapped pipeline joints can be easily damaged. Ted Hinton solved the problem with a truck mounted crane offering precision control.

Ted Hinton's H-3 Hydrocrane precisely lifts pipe joint and tenderly sets it on trailer. Joints scale 3,000 pounds each. Crane is mounted on an International L-162 truck.

SELDOM do the armed forces handle live ammunition with as much respect as Ted Hinton, Dallas, Tex., pipe stringing contractor, when he loads big-inch pipe. The pipe is pre-coated and wrapped in the C-R-C yard near Marshall, Tex. Hinton transports it to a right-of-way where Contractor Panama Williams is building a pipeline for the Pipeline Division of Humble Oil Co.

It is easy to "egg" a joint of big-inch by rough handling, and it is still easier to make a "holiday" in the wrapping material. To correct either fault requires costly delay and hand work which is usually not covered by the contract price. All parties concerned prefer the proverbial ounce of prevention.

Hinton thinks he has found this ounce of prevention in a Bucyrus-Erie H-3 Hydrocrane which he has affectionately nick-named "little dumplin'." The hydraulic-action crane is mounted on an International L-162 single rear-axle truck and a power take-off on the truck's engine actuates the pump.

The machine lifts 40-ft. joints of 18-in. pipe weighing about 3,000 pounds from a ground level rack and stacks them on pipe trailers with precision and care. Hinton's operator has hairline control of the telescoping 38-ft. boom and 6,000 pound capacity hoist line by metering the flow of oil operating the hydraulic rams that lift the boom, rotate the deck, and take in the line.

The hoist line gets its pull by means

Continued on page 58

At work on "Little Wonder" seam—name taken from deep-mine origin of coal band—is Ruston-Bucyrus 19-RB shovel rigged as skimmer to get last eighth inch off partings.

Man with shovel keeps coal seam trim for 24-RB shovel while Cat D8 with dozer scrapes off unwanted shale partings.

Strip Mining Takes Hold in Britain

by Edmund Updale

BLEAK THOUGH the winter may be in Northumberland, England's most northerly county, coal-getting under an open sky goes on day and night.

There was the traditional pause for Christmas Day. The next will be at Easter. Coal is being won today from seams to which hooded monks burrowed by lantern-light in the Middle Ages—seams once thought not worth serious consideration.

The coal that once warmed a monastery is now vital to every Englishman. Open-cut mining, introduced as a wartime emergency measure, provides an indispensable quantity of the coal required by Britain's post-war production planners.

The coal is dug by private enterprise on contract with the National Coal Board, and a great variety of modern excavating equipment is deployed.

With efficiency the keynote of operations, the best is got out of everything that moves, from graders to the "Pride of Ewart Hill Deep."

The "Pride" is a Bucyrus-Erie 1150-B walking dragline, the biggest digger on Britain's open-cut coal front. It presides over the most extensive pit in the Queen's realm.

Far around and into other counties extends the great coal zone, from which the country gets more than 10 million tons by open-cut methods every year. Something like 150 million yards of over burden a year are shifted to get at the seams, and Ewart Hill Deep open-cut mine is as good a place as any to start looking around.

The main contractors there are Sir Lindsay Parkinson and Company, Ltd., and the steel muscles they employ show a very trim line in Anglo-American cooperation.

American and British crawlers haul American scrapers. British and American shovels and draglines slog away side by side. They've been doing that at Ewart since the great pit was first drilled by Bucyrus-Erie drills and the overburden blasted with Imperial Chemical Industries explosives, in 1948.

The result has been the very welcome delivery of nearly 2½ million tons of good coal.

Average weekly rate today is 6,000 tons, but the charts show 9,000 tons for one good week last August, and 15,000 tons went through the screening plant in one exceptional week.

Maximum depth of Ewart's cut is 140-feet. The contractors are pegged to producing coal with an ash content not exceeding 12%. Frequent samples are taken on the site to see that this is observed.

Start New Cut

During *Excavating Engineer's* visit to Ewart, preparations for a new cut were being made with LeTourneau 9-yd. and 12-yd. scrapers drawn by Caterpillar D8 and D12 crawlers, removing the topsoil for storage.

Up to four Lima 3½-yd. shovels were in use at a time, stripping the subsoil. These diggers also help in the general work of removing fragmented rock at deeper levels, and do a night shift on partings between coal seams.

The Limas load 12-yd. Euclids, more than a score of which are in service in

the cut. They take the spoil round to the worked-out section for backfilling, or right out of the area if it is to be used for later surfacing of restored farmland.

Not all these Euclids are American. Quite a few are made in England under license from the parent company.

It is natural that the main burden of stripping at Ewart is shouldered by the Bucyrus-Erie 1150-B's 25-yd. bucket. The dragline stands on a 75-ft. bench to carry out the double operations of a 90-ft. dig and 30-ft. chop-down.

Three 25-yd. buckets are kept in rotational use, handling up to 2,000 yards an hour and even more when the going is easier or the dig shallower.

No parts of the 1150-B are allowed to take more than an even share of wear. A complete set of spares is kept in rotational use, and this keeps standing time to a low figure. Major overhauls are required only as a check, and the dragline has no rest except for the four main holidays of the British year—Christmas Day, Easter, Whitsun, and August bank holidays.

Apart from these four days she is on the move day and night all the year round.

Private contractors produce big coal piles by strip mining methods. High output draglines and loading shovels change some shaft mines to open pits, at Ewart Hill Deep.

Work on the construction of another 1150-B has started nearby, for use in an important pit soon to be opened, and a third 1150-B is off to Wales, to dig for anthracite.

Looking down the half-mile length of Ewart pit from behind the active bucket of the big dragline, one sees D8 dozers blading away partings as Ruston-Bucyrus shovels advance along the course of the coal seams. Far away probe Bucyrus-Erie 42-T drills, boring for future cuts.

Over on the right two Lima 3½-yd. shovels are stripping the top slice of overburden for the next cut and filling 12-yd. Euclids, disposing of 30,000 yards of muck a week. On this bench are the welding units, skid-mounted for speedy movement.

Since every chip of useable coal has to be extracted, the Ruston-Bucyrus shovels are frequently rigged as skimmers to get the last eighth of an inch off the partings. Graders are also employed on coal-getting, as well as hand shovels.

The often-scraggy coal seams greatly reduce output speeds. On a 3-ft. seam the ¾-yd. shovels win 70 tons of coal an hour, but finicky seams from six to 18 inches thick cut that rate to an average 45 tons an hour.

Difficult as coal-getting is under conditions in which fine seams are interlain

Working Ewart Hill Deep pit is a B-E 1150-B with 25-yd. bucket, the biggest walking dragline stripping coal for Britain today.

with shale, the big dig pays off at Ewart. Cost per ton by open-cut mining is well below that in deep mines not far away, and manpower figures make an impressive contrast. To get 8,000 tons a week by deep mining in Britain, 8,000 men are employed. Open pits produce the same quantity a week with only 350 men.

Export Some Coal

That includes screening workers, some of whom handpick the coal for cleanliness before it is trucked in five and 10-ton loads to Crofton Hill disposal point, five miles away. The screening plant has a capacity of 3,000 tons a day.

From the contractors' marshalling yards at Crofton Hill the coal is railed to the coast and loaded into colliers for shipment to customers, mostly in London—though some is sold in Europe. There are buyers in Germany, Denmark, Norway, and Sweden.

Thus Britain's open-cut coal helps maintain vital export contacts.

Restoration at Ewart Hill Deep is subcontracted to the Sir John Jackson Company, and the main tool employed for replacing overburden is a Bucyrus-Monighan 6160 walking dragline, which dumps 20,000 yards a week on the old main access cut and its surroundings, swinging a 7-yd. bucket. Restoration is necessary in England where farm land is almost worth its weight in gold.

Perched high on the spoilbanks, the Monighan is assisted by face shovels, a strong column of Euclids, and two Caterpillar D8 dozers. The shovels are a Lima 802 with 2½-yd. bucket and a Marion 111M with 3½-yd. bucket. The Euclids they load are among the hardest working trucks in Britain, and to keep them in top tipping condition the hirers—Blackwood Hodge, Ltd.,—have sent their own team of maintenance engineers.

These men work around the clock in shifts. Another big pit in the Northumbrian coalfield is at Chibburn. The contractors there, Holloway Brothers, have developed a working of great importance to Britain's coal output figures, producing 400,000 tons of coal since the first cut was opened in October 1951. More than six million yards of overburden have been removed, total depth of excavation being 115 feet.

Here again, LeTourneau scrapers hauled by Caterpillar tractors strip the topsoil, which is preserved with three times the quantity of subsoil for eventual rehabilitation of farmland. Restoration is a must in Britain where tillable land is at a premium.

Each LeTourneau-Caterpillar unit removes 60 yards an hour to the storage site, a long run from the new cut now being prepared.

Beyond the scrapers swing the booms of a Lima, a Link-Belt Speeder, and a

Ruston-Bucyrus shovels load coal to hauling trucks on the floor of Ewart Hill pit. Cat D8 with dozer takes off shale parting for clearing by night shift Limas and Marions.

A Lima 1201 shovel with 3½-yd. dipper loads Euclid during preparation of walking bench for Bucyrus-Monighan 5W.

Ruston-Bucyrus dragline, stripping overburden in Chibburn's A Cut in co-operation with a Lima shovel.

This latter machine, a 1201 with 3½-yd. dipper, loads 12-yd. Euclids at the rate of 140 yards per hour, the trucks wheeling away to dump back, high on the far side of the job. Nine hundred yards away along the continuous working rises the boom of the main stripper on B Cut, a Bucyrus-Monighan swinging a 6-yd. bucket from her 120-ft. jib-head.

One of two face shovels working recovery at Ewart Hill Deep is Marion 111M with 3½-yd. dipper. The 12½-yd. Euclid is one of the hardest working trucks in Britain.

Grader Proves Handy

Meanwhile, at A Cut, an Aveling-Barford 99H grader is put to good use close to the Lima shovel, taking off shale above the first flat of the Little Wonder seam, a name taken from the deep-mine origin of the coal band. The grader is also used for levelling pit-roads, and its presence shows that good use can be got out of a light machine in a spot where a dozer would be obviously wasting its muscles.

The Lima is stripping a 25-ft. clay-face well ahead of the coal-getters—a Ruston-Bucyrus 19-RB with ⅝-yd. dipper and another rigged as a skimmer which excavate the coal with the precision of a surgical operation, loading it into commercial trucks which speed it to the screening plant. The RB's also dig partings.

At the lower level the three draglines muck out material blasted by Bucyrus-Erie 27-T drills and Appleyard horizontal drills, through sandstone. Down there lies the main booty, in good thick seams compared with the Little Wonder's average of a few inches.

The 27-T's sink 7-in. holes for 5-in. Sunderite explosive charges of 10 to 80-lbs., depending upon depth, and lowered by net-string for delayed action firing.

Horizontal Augers

Horizontal auger drills bore 5-in. holes 65-feet through for 100-lb. charges of opencast gelignite, which are electrically detonated.

Working on the cut are the following: Link Belt Speeder, 2-yd. bucket, 80-

Continued on page 59

Ruston-Bucyrus 22-RB, at left, and two 19-RB's take 200 tons an hour from coal seams bared by Bucyrus-Monighan dragline on bench. Coal is then sped to screening plant.

but also significant

Loads like this have to be handled infrequently but when they are encountered they can't be permitted to stop operations.

If it's an Owen Bucket you can handle such unusual, especially difficult loads without fear of damage to the bucket.

Long experience has taught Owen Engineers where to build in the extra strength in additional material or *special* steel to withstand the abuse to which all buckets are subjected occasionally. That's why they render service for uncommonly long periods with remarkably low repair and maintenance expense.

AN ARMFUL AT EVERY GRAB

THE OWEN BUCKET CO.

6095 Breakwater Ave., Cleveland 2, Ohio

BRANCHES: NEW YORK, PHILADELPHIA, CHICAGO, BERKELEY, CALIFORNIA, FT. LAUDERDALE, FLORIDA

News from the Field

British Industries Fair Scheduled for May

The British Industries Fair, Britain's annual show window of new trade products, will be held this year in London and Birmingham from May 3–14.

Two thousand exhibitors representing nearly 100 different industries will demonstrate to home and overseas buyers a cross section of British production from confectionery to concrete mixers. Heavy industry will appear at the large exhibition hall at Castle Bromwich, Birmingham, and again it will cover the greatest area.

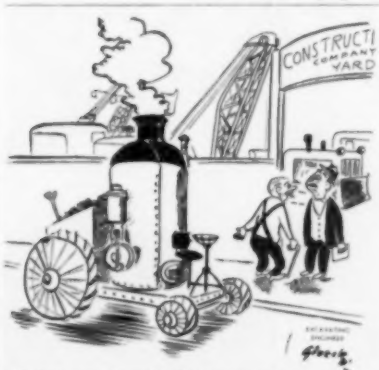
The future of the B.I.F. as an annual event has been assured by the recommendations of a recent committee of Inquiry, and plans are under way for welcoming the thousands of overseas buyers who are expected to attend in 1954. Last year 996 US buyers attended.

Safety Experts to Hold New York Convention

Ten thousand safety experts from all over the nation will gather in New York City for five days of conferences, starting April 5, aimed at reducing this country's annual accident toll of 95,000 deaths, nearly 10 million injuries and an economic loss of $8.7 billion.

New York's twenty-fourth annual

Continued on page 41



"I bet you thought I'd never get around to returning that tractor I borrowed in 1908."

Big Red TD 24 Power Play

Scores Against the Weatherman

An Actual Job Report from IH

CONTRACTOR PAUL CRAWLEY LANDS 800,000 CUBIC YARD CONTRACT ON NEW FLOODWALL FOR CAHOKIA CREEK DIVERSION CHANNEL ACROSS THE MISSISSIPPI RIVER FROM ST. LOUIS. BUT THE WEATHER DOESN'T WANT TO PLAY BALL...
I'M BEGINNING TO GET WEB FEET, PAUL, AFTER THREE WEEKS OF SPLASHING AROUND IN THIS RAIN!
THREE WEEKS OF IT! THREE WEEKS BEHIND SCHEDULE! WE'LL HAVE TO MOVE DIRT FASTER THAN WE EVER HAVE BEFORE.

APRIL RAINS FINALLY LET UP AND CRAWLEY GETS SET FOR A MUDDY KICK-OFF ON THE FIRST OF MAY...
I'M STAKING EVERYTHING ON YOU MEN MAKING UP LOST TIME! THERE'LL BE OVERTIME BONUSES FOR EVERYBODY! NOW LET'S GET ROLLING!

CONTRACTOR CRAWLEY AND MASTER MECHANIC RALPH DeVAULT COMPLETE THEIR PLANS...

EVERY MACHINE HAS TO WORK EVERY 10-HOUR SHIFT, RALPH! CAN YOU DO IT?
DON'T WORRY, CHIEF, THE OPERATORS ARE SHARING RESPONSIBILITY FOR THEIR RIGS WITH MY MECHANICS!

PAUL, THESE FOUR TD-24'S ARE THE ONLY CRAWLERS ON THE JOB THAT CAN BRING LOADS UP THIS SLOPPY INCLINE!
YES--THAT'S BECAUSE THEY CAN CLIMB AND STEER WITH POWER ON BOTH TRACKS, BUT THE OTHER CRAWLERS CAN'T!

HERE COMES YOUR PART, RALPH! HOPE I DIDN'T HOLD YOU UP!
WE'LL SLAP IT IN THE MINUTE YOU LAND, PAUL--AND THAT BIG RED BABY WILL BE HITTING 100% AT STARTING TIME!
INTERNATIONAL

COPYRIGHT 1954, PICTORIAL MEDIA, INC

CRAWLEY PUSHES RIGHT THROUGH THE WET SEASON, AVERAGES AS HIGH AS 14,600 CU. YDS. ONTO THE LEVEE PER 10 HOUR SHIFT.
WE'VE CHECKED AND RECHECKED OUR MEASUREMENTS, PAUL, AND YOUR DIRT MOVING FIGURES ARE ABSOLUTELY CORRECT! I DON'T SEE HOW YOU DO IT WITH SO FEW MACHINES!
HERE'S HOW, INSPECTOR! 27-YARD HEAPED LOADS... FAST LOADING TIME... AND TD-24'S THAT NEVER QUIT!
AND ON THE SIXTEENTH OF OCTOBER...
HERE'S THE WORD, MEN! WE'VE NOT ONLY CAUGHT UP--WE'RE FINISHED EIGHT DAYS AHEAD OF SCHEDULE, THANKS TO YOU!
DON'T FORGET OUR TD-24'S, BOSS!
INTERNATIONAL
YEAH, MAN! YOU CAN'T BEAT FOUR "BIG RED" ACES!
YOUR CREW SURE DESERVES A HEAP OF CREDIT, RALPH! YOU HAVE KEPT DOWNTIME TO A MINIMUM ON THIS JOB.
AND THOSE BIG RED BABIES REALLY MOVE THE DIRT!
ENGINEEKS DOWN AT AREA HEADQUARTERS NICKNAMED YOU "LUCKY," PAUL!
IT TAKES MORE THAN LUCK, INSPECTOR! WHEN I GET A MAN-SIZED JOB, I GET MAN-SIZED CRAWLERS!

Meet the man they call "LUCKY"

Here's Paul Crawley, 32-year-old contractor from Edwardsville, Illinois and Clayton, Missouri. He currently (October, 1953) is working on five major levee contracts with the U. S. Army Corps of Engineers, totalling approximately 2,900,000 yards of dirt and $1,300,000.

Paul says, "Yes, I know they call me 'Lucky', but you need more than luck to make up nine weeks lost by rain and floods! We made up that time in a little more than three months. We did it with a team of top operators and mechanics who used the right equipment for the job we had to get done.

"My four TD-24 tractors showed their true worth when they kept right on working in the rain, climbing slippery levee slopes with heaping scraper loads . . . a job that caused our other tractors so much trouble we had to use them elsewhere. In one clocked 13-day period, we moved 197,700 cubic yards of dirt. TD-24 performance was a tremendous factor in helping us set this record."

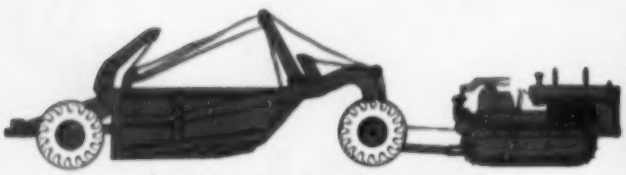
By using the best in earthmoving equipment, by hedge-hopping in his two planes and by using a powerful FM radio with two-way phones in all his superintendents trucks, Paul not only kept this project rolling —he made the dirt fly on four other levee jobs at the same time!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

POWER TO MOVE THE EARTH

INTERNATIONAL

Meet the complete INTERNATIONAL line, the hardest-working work-teams in the world!



TD-24 crawler with matched scrapers

TD-18A crawler with matched scrapers

TD-24 crawler with bullgrader

TD-14A crawler with cable bullgrader

TD-9 crawler with hydraulic bulldozer

T-9 crawler with hydraulic bullgrader

TD-6 crawler with hydraulic bulldozer

T-6 crawler with hydraulic bullgrader

Model 2T-75 two-wheel, rubber-tired tractor with 18 heaped-yard capacity scraper

Model 2T-75 two-wheel, rubber-tired tractor with 20 heaped-yard capacity bottom dump wagon

Model 2T-55 two-wheel, rubber-tired tractor with 13 heaped-yard capacity scraper

News . . .

Continued from page 36

Safety Convention and Exposition will be held in the Hotel Statler under the sponsorship of the Greater New York Safety Council and 73 cooperating agencies, among which are the Army, Navy, Atomic Energy Commission, Red Cross and business, civic, government, and professional organizations.

The convention will have 57 meetings, covering virtually all fields of industrial, highway, home, school, and public safety. The sessions will be addressed by more than 200 speakers, including Federal officials, educators, law enforcement authorities, scientists, safety engineers, and industrial executives. During the convention New York City will observe "Greater Safety Week" in welcome to the accident prevention workers and to emphasize individual responsibility in avoiding accidents.

In conjunction with the convention the Greater New York Safety Council will hold an exposition of the latest developments in safety devices, demonstration of driving and drunkometer tests, and other aids to accident reduction. There will be 118 separate displays on the Hotel Statler's 18th floor. E. F. du Pont, director of E. I. du Pont de Nemours, will address the convention dinner on April 8.

George W. Gagel Elected AED President

George W. Gagel, president of Machinery & Supplies Co., Inc., Kansas City, Mo., was installed in February as 1954 president of Associated Equipment Distributors, national trade association of the construction equipment industry, at A.E.D.'s 35th Annual Meeting held in New York City. The five day meet was scheduled from the 31st of January to the 4th of February.

Gagel, who succeeds retiring President S. John Oechsle, president of Metalweld, Inc., Philadelphia, Pa., took the president's oath of office at the association's annual installation luncheon held in the Grand Ballroom of the Waldorf Astoria hotel. Five other executive officers and directors were sworn in at the same time.

More than 2,600 American and Canadian construction equipment distributors and manufacturers attended the 1954 convention, largest in the association's history.

Gagel's election to the presidency climaxes his rise through a succession of A.E.D. executive positions. During 1953 he served as executive vice-president and member of the insurance trust. He has been on the Board of Directors since 1952, and has served two terms as director of Region IX, which embraces Kansas, Nebraska, Iowa, and Missouri. Gagel has also been chairman of the planning and promotions committee, and was twice president of the Equipment Distributors Association of Greater Kansas City.

Gagel has been associated with Machinery & Supplies Co., Inc., since 1939. The company is a well known mid-west distributor of construction and industrial equipment. Prior to 1939 he was manager of the Machinery Division, Brown Strauss Corp., and between 1925 and 1933 was superintendent for Woods Bros. Construction Co.

Other officers elected at the A.E.D. Annual Meeting include: R. J. Finn, Bode-Finn Co., Cincinnati, O., executive vice-president; S. F. Laskey, Northwestern Equipment Co., Fargo, N. D., vice-president; L. M. Doolen, Telford Equipment Co., Lansing, Mich., vice-president; R. S. Hamilton, Sheridan Equipment Co., Ltd., Toronto, Canada, vice-president; and F. J. Fitzpatrick, Parker-Danner Co., Hyde Park, Mass., treasurer.

Frozen "Needle" Solves Chemical Injection Problem

Freezing a perforated chemical injection drill point has eliminated infiltration in soil stabilization work by Soil Testing Services, Inc., Chicago, Ill.

Injection of chemical mixtures to stabilize and decrease the permeability of sand and silt soils is a process that is growing in popularity. However, it poses the problem of preventing sand from entering the drill point as it is driven to the required depth. Dry ice has provided an effective solution.

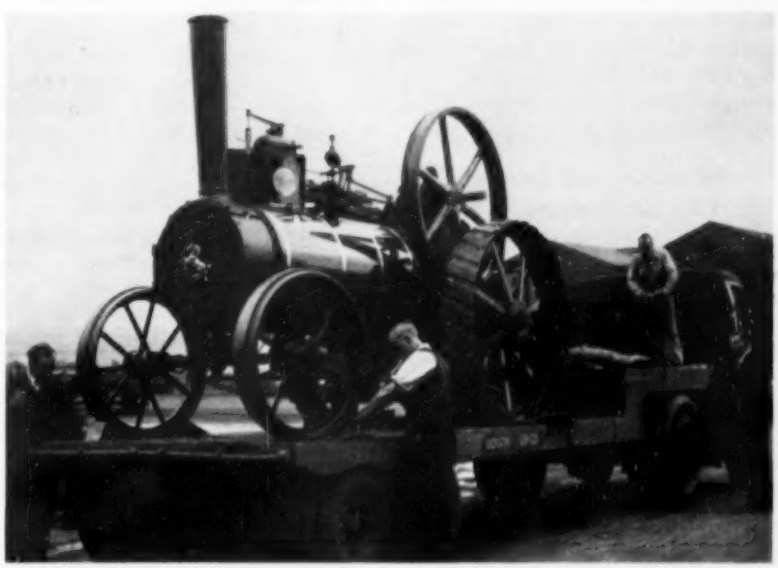
First step is to place the injection section of drill rod into a section of pipe casing and surround it with crushed dry ice. After the section of casing is completly frosted, water is introduced into the drill rod and allowed to freeze. When fully frozen, the drill rod is removed from the dry ice and set into the drill for driving. Warm water is used to melt the ice after the drill rod is in place below the water table. The chemical solution is then pumped in, to complete the process.

National Constructors Elect Officers for '54

John F. O'Connell, vice president, Bechtel Corporation, San Francisco and New York, was elected president of the National Constructors Association, an organization composed of the leading national firms engaged in the engineering and construction of power and chemical plants, steel mills, and petroleum refineries, at the association's annual meeting in New York.

J. H. Sharpe, construction manager for Arthur G. McKee & Co., Cleveland,

Continued on page 42



This 1871 Aveling & Porter single cylinder steam traction engine was given recently to an English museum after restoration at Grantham Works of Aveling-Barford, Ltd.

News . . .

Continued from page 41

O., was elected vice president of the organization.

Other members of the executive committee include: E. R. McGonnigle, The M. W. Kellogg Co., New York; C. C. Whittelsey, Ford, Bacon & Davis Construction Corp., Monroe, La.; T. C. Williams, Stone & Webster Engineering Corp., Boston, Mass.; W. R. Wood, the Girdler Co., Louisville, Ky.; L. C. Reynolds, C. F. Braun & Co., Alhambra, Calif.

Other chairmen elected for 1954, announced by the Association were: P. S. Klick, Jr., Foster Wheeler Corp., New York, chairman of the labor committee; B. O. Yeldell, Ford, Bacon & Davis Construction Corp., Monroe, La., co-chairman; F. R. Stevens, Stone & Webster Engineering Corp., Boston, co-chairman; J. J. Kelly, The M. W. Kellogg Co., New York, chairman of the safety committee; H. B. Christman, The Fluor Corp., Ltd., Los Angeles, chairman of the foreign committee; and E. D. Hoekstra, The H. K. Ferguson Co., Inc., Cleveland, chairman, public affairs committee.

Name Vice-President

H. C. Turner, Jr., president of Turner Construction Company, announced recently the election of T. Robert Frost as vice president of the company's wholly owned subsidiary, Canadian Turner Construction Co. Ltd.

Frost has been with the company since 1934, and had served as purchasing agent in the Boston office from 1941 to July 1953, when he was appointed office manager of the Toronto office of Canadian Turner.

Safety Council Releases Foremen Training Film

The National Safety Council's new series of human relation training films for foremen is now available.

Featuring O'Grady, the safety skeptic from the Council's film, *A Gray Day for O'Grady*, this three-film set tells how a foreman learns about people.

Fragile — Handle Feelings with Care shows how a foreman learns to value and respect the feelings of his workers.

Call 'Em on the Carpet illustrates the various methods foremen can employ to correct worker's faults without incurring ill will.

It's an Order is a humorous film pointing out how supervisors should give orders so that they are understandable and can be carried out efficiently by the worker.

Prepared under the supervision of the Council's industrial department, the films run 12 minutes each and are available in 16 mm sound movies as well as 35 mm sound slidefilms.

For further information and prices write the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Reishus Talks on Excavating

Presented here is the text of a talk on the ***Economic Results of Mechanization*** *by Harald T. Reishus, vice president of International Harvester Co. of Chicago, Ill. Reishus' address was given at the Road Building Equipment Symposium which was part of the annual meeting of the American Road Builder's Association in Atlantic City, N. J., in January. Reishus presided as chairman of the symposium. His speech follows:*

Gone now is Patrick with his pick and Michael with his shovel. So are Gustaf with his teams and wagon, and Heinrich with his mules and drag-scoop or Fresno-scraper.

Colorful characters they were and a delight to the contractors of their time. From practically dawn to dusk six days a week, they labored all of their lives with bulging muscles and strong language on the jobs at hand. Most of them walked to work too, and yet ended with hardly a dime in their pockets when their working days were over.

The long lines of sweating men and mules must have made a pretty picture of activity for the old-time contractor. They didn't move much yardage for him and often ate up all his profits. Moreover, the skimpy roads they made turned sharply up and around hills instead of going straight through.

But how the picture has changed! Construction men don't walk to work any more and neither does anyone else. They drive their own cars. Many own their homes. All have time and energy for sports, entertainment, family and community affairs, as well as travel, education, movies and television. They are making roads wider, smoother, safer and straighter. City and farm, product and market, work and play are coming closer together, resulting in a higher standard of living for everyone.

What *changed* the picture? Mechanization of construction operations. Today's Pat averages $2.75 an hour. He sits comfortably on a big 130 to 150 drawbar horsepower Diesel crawler—its bulldozer easily does the work of over a thousand men with picks and shovels. He can move more earth 100 feet in an hour than ten sweating men each with a drag-scoop and two-horse team could move in a long 10-hour day.

Heinrich's son Henry now rides a Diesel tractor pulling a 16-yd. struck-capacity self-loading scraper. He hauls more earth 400 feet per hour than 50 men each with a Fresno scraper and four-horse team. Henry's brother, Bill, drives a big 200 to 275 hp rubber-tired tractor and scraper that rolls earth 2,000 feet and more, leveling hills and filling valleys. The cost per yard often is less

Harold T. Reishus, vice president, International Harvester Co., and executive head of firm's Industrial Power Division.

than the old-time contractor could short-haul with labor costing him only 38 cents an hour.

The new Gus drives a 22-ton 300 hp rear dump truck, loaded with blasted rock in three to four minutes by a young Mike operating a 2½-yd. shovel. Just for the record, Mike averages better than $3.00 an hour. These are products of the current generation of mechanized earth-moving. Their practiced eye and skilled hands carve super highways straight through hills and mountains, over and under grade and railway crossings, saving time and money for motorists and truckers. And the built-in safety features of the new highways are saving countless lives.

In 1952 the U. S. Bureau of Public Roads was asked to comment on the results of mechanization on highway excavation costs. This is revealed by an index kept continuously from 1922. The Bureau reported as follows:

"Over the years there has been a con-

tinued rise in labor rates, in the price of equipment and materials, and in the contractor's overhead. If these increases had not been offset by the development and skillful use of modern construction equipment, road excavation costs today would be about three times as great as they actually are."

The index shows that the national average for unskilled labor on all federal aid projects rose from 38 cents an hour in 1923 to $1.49 in 1953. During the seven years from 1947 to 1953 an index for skilled labor has been available. This shows an increase from $1.68 to $2.44 an hour, yet the cost of common road building excavation in 1953 was much less than in 1923. Now that wage rates and prices of equipment are showing signs of stabilizing, the bid trend for excavation is further downward. This trend has been accelerated by an increase in the number of contractors bidding on jobs in the past five years and also by an increase of 50% in contractor's capacity—mostly due to the improvement of construction machinery.

Excavation Costs Are Factor

Excavation costs are always a basic factor in heavy construction. According to H. H. Everist, Jr., treasurer of Western Contracting Corporation, one of the builders of Fort Randall Dam, modern machinery has caused a remarkable reversal in excavation economics. Twenty-five years ago, labor accounted for 75% of total excavation costs. Today, labor accounts for less than 25% of the total cost. Remember, wage rates are more than four times higher today than they were 25 years ago. But here is another minor miracle in the picture. Excavation bid prices have been cut in half during that same period. In other words, modern machinery provides twice as much work and four times as much wages as the methods of a quarter of a century ago.

After the earthmovers have prepared the right-of-way, comes a relatively small paving force with a train of efficient machines. These machines are a far cry from the big manpower set ups that inched along and sweated out the narrow roads of 25 years ago. This synchronized force now lays down much thicker, wider and better reinforced paving with a precision, speed and economy which was not possible by the old methods.

The precision of modern paving machinery makes the difference between profit and loss for the paving contractor. For example, the Ohio Turnpike Commission is specifying a ten-inch concrete slab. If the paving contractor fails to put in ten inches of concrete, he will be sued. If he puts in more than ten inches, he will very likely go broke. Every ingredient must be exactly controlled to meet specification. Precision machinery is the obvious answer. It eliminates the waste and still provides specified pavement.

Years ago, farmer Brown occasionally hitched his team to a crude log drag and either worked out his road tax or earned an extra dollar by maintaining a share of the farm to market roads. Like the whiskers on farmer Brown's chin, those days are gone. Instead of his horse-drawn log drag, motor graders keep thousands of miles of secondary roads in good driving condition. The weeds along the shoulders are cut by fast-moving power mowers instead of a scythe. Mechanization of road main-

Continued on page 44

20% more production with AIR controls!

● A crane operator can move about 20% more material in a day if he stays rested and alert. To assure this extra production from Dieselectric Locomotive Cranes, American Hoist & Derrick Co. uses a pneumatic control system supplied by Westinghouse Air Brake Co. It is giving excellent results.

The operator can regulate hoisting, swing, or travel just by moving a finger. He has no heavy levers to tug every time he picks up another load. As a result, his job is less fatiguing and he remains fresh and efficient all day.

A Westinghouse Air Brake pneumatic control system can make *your* machines easier to operate. Write for specific information; our engineers will be glad to help you.

Westinghouse Air Brake
COMPANY

INDUSTRIAL PRODUCTS DIVISION WILMERDING, PENNSYLVANIA

Factory Branch: Emeryville, Calif.
In Canada: Canadian Westinghouse Co., Ltd., Hamilton, Ontario

News . . .

Continued from page 43

tenance has given farmer Brown's sons good farm-to-market roads—an economic and social necessity today. The farm children of today get a much better education in modern cooperative schools—made possible by the school bus rolling on good roads.

In general, mechanization replaces toil and sweat with high-paid manual skill. At the same time, it reduces construction costs and provides incentive for more building and greater national progress. It adds inestimable strength to national defense — speeds airfields, military bases, factories, roads, and docks. It clears debris and restores essential facilities in minimum time after catastrophies. Indeed, mechanization has brought economy and speed to construction. It has not only helped create one of our biggest industries, but also a new and better way of life.

Equipment Progress Development

The economic benefits of mechanization stem from the progress made in equipment development. Most of the construction machinery in use today had its inception many years ago. Real mechanization began with the steam shovel, the first successful model appearing in 1837. This machine, invented and built by William S. Otis, can truly be called the ancestor of modern earthmoving machinery.

One of the earliest power machines made for road construction was the steam roller first built in France in 1865. Further improved, its manufacture in the United States began in the 1880's. Today we have excellent rollers, either gasoline or Diesel powered, with full-reverse transmissions and hydraulic steering.

Other inventors came up with what were ingenious devices a century ago. A self-loading cart was invented in 1850, probably the earliest predecessor of the modern scraper. Another 50 years, however, passed before the carrying feature was added. Some consider the horse-drawn Fresno scraper invented in 1882 as the forerunner to today's bulldozer. A road grader, actually a drag, was patented about 1855, but this is hardly comparable to its descendant, the highly developed motor grader of today.

These machines were important in the origin of modern roadbuilding equipment. But real progress in mechanization of earthmoving awaited the introduction of the crawler tractor, which came into practical being shortly after the turn of the century.

Origin of the colorful name "bulldozer" is obscure, but a true ancestor of today's mechanized bulldozer appeared about 1900 mounted by a contractor on the front end of a steam traction engine. Foley Bros., a pioneer railroad construction firm, gets the credit for this forward step in introducing the miracle weapon of World War II and what is probably the most versatile tool in the present line-up of earthmoving equipment.

The introduction of the crawler tractor and self-loading carrying scraper combination, and of its high-speed companion, the self propelled scraper, came gradually. Beginning in the mid twenties, their use was accelerated in the thirties with the advent of Diesel power.

Another great forward step, the use of pneumatic tires on road machinery, was introduced on a motor grader in Missouri in the late twenties. Soon scrapers and other equipment rolled freely on rubber. When the self-propelled scraper was equipped with large rubber tires in the late 1930's, fast low-cost long-haul earthmoving became a reality.

World War II and its essential demands for earthmoving equipment pushed manufacturing to the limit. More power, bigger tires, greater carrying capacity became the targets of equipment engineers. How well they succeeded in hitting these targets is evident in the wide variety of more powerful and higher speed equipment available today.

Progress in Truck Design

Coincident with the development of self-propelled scrapers and wagons came steady progress in the design of trucks. The Diesel-powered, off-highway type have now reached the stage where 300 hp and capacities of more than 20 tons are common.

Shovels still predominate as loading equipment. Over the years the power shovel has been steadily improved and is now available both on tracks and rubber with various attachments. Power has changed from steam, through gasoline to Diesel. The power shovel is the standard tool for loading blasted rock. Tractor-shovels have replaced hand shovels in basement digging and materials handling.

A new loading tool for fleets of self-propelled bottom-dump wagons has recently appeared. This is a powered belt-loader, which when pulled by the bigger and more powerful crawlers now available, has a capacity of 1,000 to 1,500 cubic yards an hour.

Standardization of equipment mounting provisions and of capacity ratings is a desirable trend. This is also being pushed by military demands.

Concrete mixers and pavers, air compressors and pumps, self-priming centrifugal pumps—all now have guaranteed capacities under standard rating conditions.

Manufacturers Improve Designs

All manufacturers are continually making refinements and improvements in their designs. Users constantly insist on more power, greater work capacity and easier control. At the same time they want greater dependability for more hours on the job along with less routine maintenance.

Easier control and operation is being given a big assist through use of mechanical boosters, hydraulic, air and electric controls. The torque converter can do much to simplify operation, and if further improvement can be made in its power transmitting efficiency, will become more generally accepted in earthmoving equipment.

While tremendous progress has been made in increasing the productivity and efficiency of road building equipment, there is still no all-purpose tool that does everything with top efficiency. Some equipment, such as crawlers, bulldozers and motor graders, are extremely versatile. Many small excavating contractors have put themselves into profitable business with a tractor-loader and a truck or two. But the highway contractor, to be low bidder and yet make money, must still carefully select the right size, type and number of machines to perform each operation most efficiently.

The typical construction equipment spread is like a high-powered football team. It is loaded with championship material but must also be well coordinated and kept in good shape to come out on top. For best results, pick the right equipment for each job. Plan the work to take full advantage of each machine. See that every machine is properly operated. Keep the equipment in first-class condition. Instill a high spirit of teamwork in each member of the organization. You will then inevitably have a profit-winning combination that scores more and better production at lower cost.

Equipment You Ought to Know About

Towing Tractor

Manufacturer: Frank G. Hough Co., 708 Seventh St., Libertyville, Ill.

Claims: New attachments and improvements on the four-wheel-drive TM "Payloader" towing tractor include pusher and towbar plates, single or dual railway couplers, air compressor attachment, switchman's platform and catwalk, hydraulically driven winch and four-wheel vacuum-booster brakes.

Twice the braking capacity, with less operator effort, is the result of the new four-wheel vacuum-booster brakes. Together with the four-speed, full-reversing transmission, torque-converter drive and power-steering, all of which are standard, new highs in ease of operation and efficiency are claimed by the manufacturer.

Long (pusher) plates or short (towbar) plates can be supplied on front or rear of the TM tractor for car-spotting work.

Dual railway couplings, one on each side of the rear plate, make it possible for the tractor to handle cars while straddling either rail. The long knuckle-type of coupler is also available for use where the tractor has to pass over switch points, crossings, and other irregularities.

This four-wheel drive "Payloader" tractor can be furnished with an air compressor to provide emergency con-

Continued on page 46

UNIT CRANE & SHOVEL CORP. UNIT MILWAUKEE WISCONSIN

. . the Trademark that *Signifies* PROGRESS

You can always rely on equipment carrying the distinctive UNIT emblem. Backed by more than a quarter century of engineering and manufacturing experience, this well-known trademark signifies progress in crane and shovel design. It is your guarantee of obtaining the finest and most dependable equipment that money can buy.

1930 — Every UNIT was equipped with ONE PIECE GEAR CASE, enclosing all gears, shafting and bearings in a constant bath of oil. Also featured was the CLUTCH SHAFT ASSEMBLY, using Disc Type Interchangeable Clutches and "Straight-in-line" engine mounting. Reduces maintenance. Improves performance.

1939 — Introduced AUTOMATIC TRACTION BRAKES. These internal expanding friction type brakes, engage and release automatically and provide traction lock without manual control. Steering is accomplished by single lever control.

1944 — Yes 10 years ago, UNIT made the "break" from the old style conventional type of cab to the UNIT FULL VISION CAB. The compact design of the upper structure enabled UNIT to make this decided improvement, giving the operator 360° of complete visibility. This exclusive feature was designed *into* the machine . . . not just tacked on.

1954 — Bring NEW DEVELOPMENTS such as: UNIT with TORQUE DRIVE — SOLENOID ACTUATED DIPPER TRIP — ALUMETALLIC CLUTCHES — Latest Crane Carrier Design and other UNIT features described in Bulletin U-1153. Write for your copy.

• • •

UNIT models available in ½ or ¾ yard Excavators . . . Cranes up to 20 tons capacity . . . Crawler or Mobile types . . . Gasoline or Diesel. Ask for literature.

UNIT CRANE & SHOVEL CORP.

6613 W. BURNHAM STREET • MILWAUKEE 14, WIS., U. S. A.

UNIT

All Models Convertible to ALL Attachments!

A 7751-¾-P.C

New Equipment . . .

Continued from page 45

trol of the air brakes on cars being moved and/or to supply power for pneumatic tools. Additional refinements available on the TM tractor are a switchman's platform and catwalks for use during car-switching operations.

When the tractor is used for hauling trailers, connections can be furnished to permit operation of vacuum brakes.

Scraper

Manufacturer: Wooldridge Manufacturing Co., Sunnyvale, Calif.

Claims: The new Model OS-152 tractor-drawn scraper has capacities of 19.0 cubic yards heaped, 15.2 cubic yards struck.

Extremely low gravity center for stabilized balance in all positions, high 25-in. ground clearance offering increased maneuverability, and wide 75-in. apron opening to allow unrestricted discharge of sticky materials are claimed as advanced design characteristics.

Positive "Roll-Out" ejector is actuated by a pushing ram requiring minimum power. Large low-pressure tires provide maximum flotation. Simple cable reeving insures longer cable life.

Welding Electrode

Manufacturer: General Electric Co., Schenectady 5, N. Y.

Claims: A new contact electrode provides high-speed welding and great operator appeal.

Best suited for work on mild and medium carbon steel, the new rod is ideal for welding machinery, low pressure storage tanks, and light structural work. It is suitable for many welding operations requiring AWS classes E6012 and E6020 electrodes.

The relative high-speed quality of the new electrode was established in the G-E welding research laboratory, where engineers conducted a series of actual work tests. Results showed that the new product consistently produced a higher rate of weld footage than conventional electrodes.

G-E engineers said that "more metal is deposited per unit of arc energy with this type electrode than any existing covered electrode." They added that the quantity of deposited metal even exceeds some manual automatic processes. Encased in a rutile-type covering enriched with iron powder, the new electrode can be used effectively on horizontal and flat position fillets and laps, single and multiple pass butts, and deep grooves and cover passes on multiple-pass butt welds.

Since the electrode is of the contact type, less physical effort is expended in welding. For the same reason, less welding skill is required of the worker.

The contact electrode develops up to 80% less spatter than other welding rods, and resultant weld slag is easily removed by a light tap.

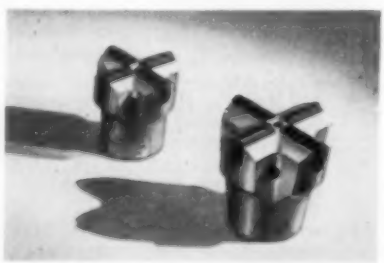
Rock Bits

Manufacturer: Copco Pacific Ltd., 930 Brittan Ave., San Carlos, Calif.

Claims: A full series of carbide-tipped detachable rock bits will be added to the Coromant drill steel line.

The new bits will be available in diameters ranging from 1⅛ inches to four inches.

Field tests on selected Western projects now are under way to compile case history data, and to verify records of Canadian comparative tests which showed the new tools to be drilling up to 300% more footage. This improvement was the result of a new Coromant



formula for the carbide insert and also a special Swedish steel used in the skirt and body of the bit.

Wellpoint

Manufacturer: Foundation Equipment Corp., 10-11 38th Ave., Long Island City 1, N. Y.

Claims: A new wellpoint will be marketed under the name "Freeflow." This new wellpoint is an original design with patented features developed through years or research and field experience.

The screen assembly has no contact with the inner pipe . . . it cannot rust to the pipe.

The screen assembly is a ruggedly constructed, self-contained unit consisting of a fine filtering wire cloth held rigidly in place between the inner slotted brass tube and outside perforated brass jacket. No internal supports of the screen assembly are necessary to withstand normal lateral pressures encountered in wellpoint work. This construction affords an unobstructed flow area, giving greater capacity.

When pumping, the fine inner mesh screen cannot pull away from the outer perforated brass screen to permit entrance of sand or silt.

The need for dismantling for repairs has been reduced to a minimum. When necessary, the Freeflow wellpoint is easily disassembled . . . simply unscrew the jet head and remove screen assembly.

Loaders

Manufacturer: Le Roi Co., 1706 S. 68th St., Milwaukee 14, Wis.

Claims: The Transo Division of Le Roi Co. is now offering front end loaders in several sizes that feature torque converter, power steering, and reversing planetary transmission as standard equipment.

These new units, which will be merchandised through Le Roi's Construction and Mining Division, range in size from ½-yd to 1½-yd. capacity.

The patented bucket rocking action and the scooping motion of the lift arms assure full bucket load within seconds without tire spinning and other undue strain on the loader.

Bucket rocking action, a patented Le Roi feature, makes for fast loading in all models. The bucket rocking action is the result of the rocking motion of the hydraulic cylinders which are placed

well back out of the dirt agitating area on the machines and afford extra reach.

Bucket rocking action enables the operator to rock the bucket into the material being moved. The rocking motion is actuated by the hydraulic lift and bucket cylinders and further assisted by the positive traction of the loader.

The TLF-150 can move to discharge points at speeds ranging up to 18 miles per hour. Four wheel drive and low center of gravity put powerful traction on all four wheels of this unit to boost production and eliminate tire slippage.

Because of the four wheel drive feature, the TLF-150 is able to walk through sand, mud, snow, or tread with ease over treacherous rocky terrain.

Easy access and maintenance of the Transo units is made possible by the compact grouping of torque converter, engine transmission, and clutch at the rear of unit. All sizes will be powered by Le Roi heavy duty engines and will be available with reputable Diesel also.

Other important economy features of the loaders are the rugged Transo planetary type reversing transmission and torque converters employed in all models. Power is transmitted fast and efficiently at very low torque. Shock loading is cushioned by a smooth operating spring loaded clutch on the outside of the transmission. Clutches can be replaced in less than an hour's time.

Heavy cast iron grills on all units give extra protection to the rear end and act as counterweights thus eliminating poor road clearance. Operator vision is especially good due to the low 36 to 48-in. normal carrying position. The low carrying position is also an important safety feature.

Pressure Pack

Manufacturer: California Oil Co., Barber, N. J.

Claims: A new pressure pack for priming fuel has been developed by the manufacturer to quick-start all types of heavy duty internal combustion engines in temperatures as low as −65°.

Called the Pressure Primer System, the starting aid uses Chevron priming fuel packaged under 250 lbs. of pressure in a 9.9 cc steel bulb. The fluid is a highly combustible material that permits the engine to run until it can build up enough heat to operate on the regular fuel.

The operator controls the release of the bulb from the cab by means of a

Continued on page 48

3 NEW FEATURES improve trailer performance

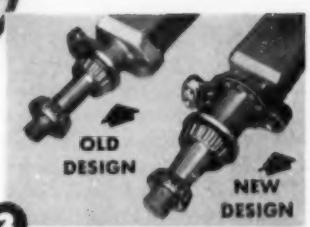
1 Lengthwise Decking

Tough oak planking runs parallel with length of trailer for extra strength and durability in end loading . . . is specially recessed for minimum loading height.

. . . and now LACROSSE gives you all three!

Here are *three more* reasons why the best trailer buy in 20 to 40-ton capacity low beds is the *new* LaCrosse DF6T. This popular tandem axle carrier *now gives you* extra durable lengthwise decking . . . lighter weight spoke wheels . . . plus replaceable brake spiders. And that's not all! LaCrosse continues to give you *up to 2000 lbs. more PAYLOAD capacity per trailer* . . . plus bigger brakes with longer-lasting linings . . . still at the *lowest price in the industry!* Better get full details right now.

LC-28



2 Replaceable Brake Spiders

Exclusive bolt-on arrangement (right) permits *quick, low-cost spider replacement,* without having to purchase or remove expensive axle assembly.

3 Cast Steel Spoke Wheels

Improved La Crosse design, with 6 individual rim lugs, *saves 30 lbs.* of useless dead-weight per wheel . . . *simplifies alignment* of wheel and rim.

Check Today!

LaCROSSE TRAILER CORPORATION, LaCrosse, Wis.

☐ Rush complete information on LaCrosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest LaCrosse Distributor.
☐ We may buy a _____ton trailer about _____ (date)

Name _____ Title _____
Employed by _____
Address _____
City _____ State _____

LaCROSSE
America's Favorite LOW-BED TRAILER

New Equipment . . .

Continued from page 47

discharger installed on the engine control panel. When priming fuel is needed the bulb is placed in the discharger, a lever is pushed and the discharger pierces the sealing cap of the bulb and directs the priming fuel through a small tubing connected to the engine intake.

Simple to install and easy to operate, the Pressure Primer system also increases the efficiency of the priming fuel because it releases it in an atomized form.

Safety is another important advantage. The all-steel bulb, sealed with welded enclosures, provides maximum resistance to accidental release of the fuel by abnormal heat, water or physical shock. Waterproof and dustproof, the discharger, too, is designed to eliminate the escape of flammable material.

Built to withstand between 6,000 and 8,000 lbs. hydrostatic pressure, the bulb will stand temperatures of more than 600° Fahrenheit without rupture.

Without the application of heat the Chevron Pressure Primer System is capable of starting a Diesel engine at the first revolution of the engine at −50°; a gasoline engine, at −65°. The system also is useful at normal temperatures for starting engines in poor condition or with low cranking speed.

Brake

Manufacturer: Allison Division of General Motors Corp., Indianapolis 6, Ind.

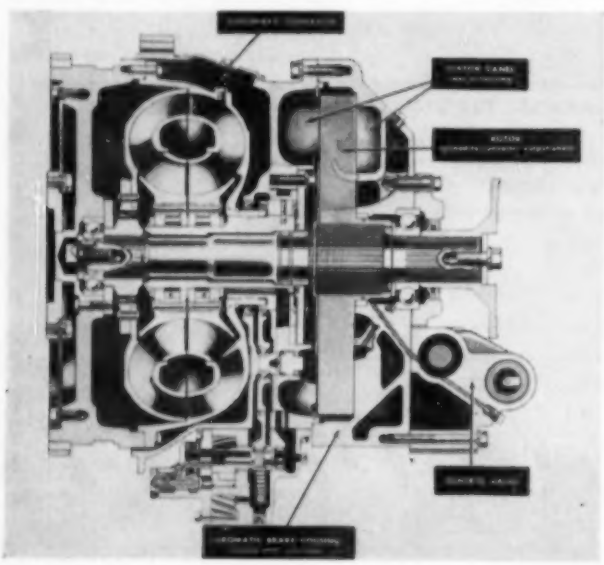
Claims: A new braking device which provides positive control over the down-hill speed of heavy-duty, off-highway trucks without wear on the conventional friction brakes was announced recently by the manufacturer.

Known as the Torqmatic Brake, the new system is an added package to the Allison Torqmatic converter now in general use with Allison Torqmatic transmissions in a number of heavy-duty trucks used in construction and mining industries.

The Torqmatic brake is not a friction type brake and thus has no parts which burn up or wear out under heavy usage. Instead, it consists of three major parts: A rotor is assembled as an integral part of the converter output shaft; the stator vanes are cast into the housing which encloses the rotor; and a control valve.

As the truck moves down-hill, the operator opens a control valve which admits oil to the brake. The paddles of the rotor churn the oil against the stator vanes, thus placing a drag on the converter-transmission drive shaft. If more braking is required, more oil is admitted to the brake. Thus the operator has the truck under full control at all times and he need use the conventional friction brakes only to come to a complete stop.

On the down-hill grade, the oil does all the braking work and also absorbs the heat generated by the braking action. The pumping action of the rotor circulates the oil to a heat exchanger where the heat is harmlessly dissipated. Source of the oil supply is the lubricating system for the converter and transmission, so after cooling the oil is returned to the oil reservoir for re-use. Because it can move down-hill, under great control and at higher speed, a truck equipped with Torqmatic Brake can make more trips per shift and return more income to the operator, it was pointed out by the manufacturer. In addition, maintenance and replacement of linings on the conventional brakes are greatly reduced.



The Torqmatic Brake has been undergoing a number of field service tests at various locations since August 1952 and recently has been put into commercial production. It can be specified on new trucks or field installed on vehicles already equipped with Allison Torqmatic Drives.

Dump Body Hoist

Manufacturer: Galion Allsteel Body Co., Galion, O.

Claims: A new 8½-ton capacity dump body hoist is known as Allsteel Model 740. The new unit weighs 1025 lbs. Capacity is rated on the basis of a 10-ft., 4-yd. dump body.

Model 740 features an all-steel subframe with underbody double lift arms.

Piston rod diameter is 2½ inches and stroke is 18⅛ inches. There are 4.3 gals. of oil in the hydraulic system and piston stroke oil displacement is 765 cubic inches. Cylinder diameter is 7.156 inches. Mounting height is 14 inches and hoist has a 50° dump angle.

The hoist is equipped with a heavy duty pump which can be applied in either vertical or horizontal position.

Concentricity Gauge

Manufacturer: Kent-Moore Organization, Inc., 5-105 General Motors Bldg., Detroit 2, Mich.

Claims: To check concentricity between the injector tip and injector nut after assembly, an injector tip concentricity gauge has recently been added to the manufacturer's line of Diesel service tools. Bearing the catalog number J 5119, the gauge is applicable to injectors used in General Motors Series 71 Diesel engines.

To insure correct clearance between the injector spray tip and the cylinder-head injector hole tube with the injector properly installed, the spray tip must

be concentric to the injector nut within 0.008 in. The "run-out" of the injector spray tip may be measured by placing the assembled injector in the gauge, then setting the dial indicator at zero, and rotating the injector in a complete circle and noting the total reading.

If the total indicator reading is greater than 0.008 inch, the injector should be removed from the gauge, the injector nut loosened, the spray tip recentered, the injector nut tightened, and the "run-out" re-measured in the J 5119 injector tip concentricity gauge.

Welding Electrode

Manufacturer: Rankin Manufacturing Co., 3072 W. Pico Blvd., Los Angeles 6, Calif.

Claims: A Ranite high speed build up welding electrode offers a 20% faster deposition rate, which helps to preserve the desirable properties of manganese steel.

The rod, an improvement on the Ranite Type "A" electrode, provides the exceptional toughness required of a build-up base for such applications as crusher rolls, mantles, etc. Since deposition rate is increased, less heat is induced to the parent metal, thus minimizing stress and pull. Rapid deposition (20% faster when run on straight polarity) also means less welding time which reduces costs.

Portable Pumps

Manufacturer: Jacuzzi Bros. Inc., Richmond, Calif.

Claims: A completely new and im-

Continued on page 50

the pit: *tough...* 70% ROCK 30% SAND

the machine: Sauerman 2½-cu. yd. slackline cableway excavator

the result:

"...a full bucket every trip"

Another actual field report—Helena Sand & Gravel Co., of Helena, Montana, switched to this Sauerman equipment in 1946. It's been in operation since then . . . successfully performing difficult underwater excavation of rock and colloidal sand where other equipment had failed.

Sauerman Slackline Cableways span water, bogs or pits . . . reach far, dig deep, lift and carry loads to hoppers or cone piles. However tough the pit, Sauerman equipment brings in a good load every trip.

With a Sauerman Slackline Cableway, one man—in safe position—operates a single machine . . . does the complete job, quickly, efficiently, economically! Sauerman Slackline Cableways range from ⅓ to 3½ cu. yds. —span distances up to 1,000 feet . . . handle such materials as sand, gravel, clay, peat, ore and rock.

Write today for more information, including these handy field reports and catalog:

FR-216	Easy Excavating in a Tough Pit
FR-213	Cleaning Ponds Without Draining
FR-102	Digging Gravel From a River
Catalog C	Sauerman Slackline Cableways

SAUERMAN BROS., INC. 574 S. Clinton St. Chicago 7, Ill.

SAUERMAN BROS., Inc.

HOW TO GET
EXTRA profits
on
EXTRA jobs

BUCYRUS ERIE

If you're a contractor with only part-time blast hole work, you can cut drilling costs and increase your income with a modern Bucyrus-Erie 20-W or 22-W well drill.

These mobile, multi-purpose machines put down 4-in. to 10-in. blast holes fast and efficiently and also double on profitable sidelines like rental, contract, or water well drilling. Both the 20-W and 22-W have plenty of spooling capacity for the deeper drilling generally required in water well work.

Write today for the full story on how truck or trailer-mounted Bucyrus-Erie drills can reduce your costs and expand your profits.
26W53

BUCYRUS-ERIE CO.
SOUTH MILWAUKEE, WIS.

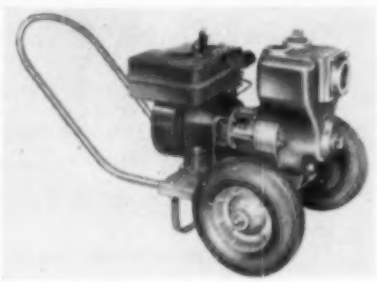
New Equipment . . .

Continued from page 49

proved line of self-priming contractors'-type centrifugal pumps is specially built to handle muddy or unclear water. The new heavy-duty units are designed for water drainage or any other application where rapid movement of large volumes of water is desired. They are especially suited for use by building contractors for de-watering excavations and quarries.

The improved design features a balanced type of priming port which prevents loss of capacity due to re-circulation of water. Semi-open impellers are non-clogging with adjustable clearance to compensate for wear; and a special renewable impeller wear plate prevents wear on the impeller case itself. Separate opening in top of case permits easy priming without need for extra fittings or disturbance of piping. These pumps are rated for continuous duty as well as for intermittent service.

The new pumps are now available in a wide range of horsepower ratings with choice of electric motor, gasoline engine or heavy-duty transmission head for belt drive. For greater ease in handling on job sites, the pumps may also be ordered complete with light weight two-



wheel hand trailer with ball bearing type wheels and semi-pneumatic tires.

Dragline-Crane

Manufacturer: Osgood-General, P. O. Box 515, Marion, O.

Claims: A new 1-yd. dragline, or 17-ton lifting crane is now in production at the General Excavator Plant.

Built into the Model 327, to provide a dependable, high-production machine, are such features as roller-bearing mounted hoist drums; roller-bearing mounted hook swing rollers; anti-friction bearings on superstructure main shafts; independent boom hoist, with power up and power down; enclosed deck gears, machine cut gear teeth; and flame hardened gears where extra stress occurs. Swing gear in crawler frame is made separate from crawler frame, and has machine cut teeth. Features which are not standard, but are optional, include: Independent travel; torque converters and fluid couplings; rapid folding and back-hitch high gantry; boom stops for safety; different widths of tread belts, and various combinations of boom point sheaves.

Machine is manually controlled. Large diameter, disc-type clutches are used on swing shaft. Deck is one-piece steel

casting, scientifically designed for maximum stiffness and strength. Deck machinery is readily accessible and any of the principal superstructure shaft assemblies can be removed without disturbing the other assemblies.

Vital statistics list: 12-ft. 10-in. long crawler; standard width 11-ft. 0-in. Standard boom is 45-ft. long, all-welded, with heavy tubular lacing, available as flange or pin connected.

Boom inserts of variable lengths are available. Two types of fairlead are offered, either the standard swing type, or the optional revolving type. The revolving type is fitted with anti-friction bearings in sheaves and spindle.

Crawler Tractor

Manufacturer: Caterpillar Tractor Co., Peoria 8, Ill.

Claims: Marking its 50th year of manufacture of track-type tractors, Caterpillar Tractor Co. has announced a new 150 hp D8 tractor.

A Caterpillar-built Diesel engine with an output of 185 hp operating at a governed speed of 1,200 rpm powers the new D8.

Listed among the new engine features are a new cylinder head incorporating

improved valve springs similar to those used in Caterpillar's big V12 engines; valve rotators to lengthen service of engine valves; valve seat inserts of specially hardened metal for inlet and exhaust valves to increase durability and simplify servicing; new camshaft; stainless steel heat plug to protect the piston crater; oil pump mounted in oil pan and driven from front of crankshaft making servicing easier and increasing pump capacity; exclusive oil pressure throttle control system; stream-lined and enlarged inlet manifold to improve volumetric efficiency; and a larger air cleaner.

In connection with the oil pressure control system, even cold, stiff oil is quickly forced through the lines to the bearings to provide prompt lubrication under the most severe weather conditions. Only the quantity of oil actually required by the system is pumped, avoiding undesirable oil sump turbulence caused by conventional oil pump bypass.

The oil clutch, introduced in the crawler tractor field by Caterpillar in 1953, is another proven improvement contributing to the long life and low maintenance cost of the new D8.

In first gear the new D8 will develop a drawbar pull, with standard transmission, of 29,200 lbs. and with the optional heavy-duty transmission a drawbar pull of 39,800 lbs. Calculated values, with standard transmission in first gear, for the maximum drawbar pounds pull when engines are slowed down by overload, is 32,900 lbs., and 44,840 lbs. with the optional heavy-duty transmission.

Speeds of the latest D8 are increased over earlier models. Forward travel speeds with standard transmission are: first, 1.0 mph or 167 fpm; second 2.7 mph or 238 fpm; third 3.5 mph or 308 fpm; fourth 4.5 mph or 396 fpm; fifth 5.8 mph or 510 fpm. With optional heavy-duty transmission, speeds are announced as: First 1.4 mph or 123 fpm; second 2.2 mph or 194 fpm; third 3.1 mph or 273 fpm; fourth 3.8 mph. or 334 fpm; fifth 5 mph or 440 fpm.

Reverse speeds with standard transmission are: First 1.9 mph or 167 fpm; second 2.7 mph or 238 fpm; third 5.8 mph or 510 fpm. With optional heavy-duty transmision, reverse speeds are: First 1.9 mph or 167 fpm; second 3 mph or 264 fpm; third 5.2 mph or 458 fpm. Another optional transmission is available for the new D8 which will permit a top speed of 7.2 mph.

Length overall is 16-ft. ⅛-in. and height is 7-ft. 2-in. Width is 8-ft. 7¾-in.

Shipping weight of the new model is 38,155 lbs.

2-Ton Roller

Manufacturer: Andwall Manufacturing Co., Oconomowoc, Wis.

Claims: A new two-ton roller is said to be capable of surfacing within 1½-inch of curbing, wall, or any other vertical obstruction.

This equipment can be readied for trailing behind any truck at desired speed due to the hydraulic lift which raises the 36-in. 4,100-lb. roller off the ground. Wheels with pneumatic tires support the roller for quick transport from job to job.

The Andwall roller concentrates its weight on the main roller and provides a compaction pressure of 110 lbs. per

lineal inch. The water drum capacity is 800 lbs. and the tank holds 220 lbs. The roller is powered by a 11.2 hp two-cylinder air-cooled Wisconsin motor. There are no gears to shift and no complex clutch adjustments.

Cabs

Manufacturer: Campbell Detachable Cab Co., Wauconda, Ill.

Claims: A new line of streamlined operators' cabs for all models of Hough Payloader tractor-shovels has been an-

Continued on page 52

New Equipment . . .

Continued from page 51

nounced by the manufacturer.

These new cabs are easily detachable and feature strong, lightweight construction with safety glass all-around for maximum visibility and safety. The glass is cushioned and sealed in locking rubber channel. Ample room is allowed for the operator and sliding side windows permit full ventilation when desired. These new cabs tilt up and sideward so as to make operator entrance and exit both easy and convenient.

Windshield wipers front and rear can be furnished—also heater-defroster units to provide utmost operator visibility and comfort in coldest weather.

Campbell 1954 Model cabs are also available for most standard makes of

crawler and wheel-type tractors in addition to the Hough Payloader line of tractor-shovels and tractors.

Electric Motors

Manufacturer: Louis Allis Co., Milwaukee 7, Wis.

Claims: A completely redesigned line of electric motors to meet new NEMA rating standards has recently been announced by the manufacturer. These new motors are available in all standard enclosures—open, drip-proof; totally-enclosed, fan-cooled; and explosion-proof. They will be built up to frame size 326 (40 hp at 3600 rpm.)

Known as the L. A. line, these motors feature new modern styling; improved ventilation; and greater protection. The new line also has new conduit box arrangement, more versatile mountings, and lighter weight without loss in mechanical strength.

Conformance to smaller external dimensions — without sacrificing motor service factors or liberality of design—has been accomplished by using larger lamination diameters and longer stacking with shorter coil ends.

The new L. A. line has virtually the same amount of active material for each

horsepower and speed as older, bulkier units. Therefore, it delivers the same performance as previous units with comparable starting and breakdown torque, efficiency power factor, temperature rise, and service factors.

Bearing construction, an important factor in dependable motor operation, has been improved over previous designs, according to the manufacturer. Bearings are factory-lubricated with ample grease supply to give years of service in normal usage without maintenance or attention. Special effort has also been made to use bearings that are easily obtainable from local stocks. Bearing grease-seals have been designed for greater effectiveness to prevent grease from leaking along the motor shaft.

Other important features of the new motors include more efficient and effective ventilation, obtained through better utilization of aerodynamic principles. A new type conduit box arrangement is designed for ease of electrical connection and to provide permanent, positive lead identification. In addition, a new motor nameplate gives much more complete information to the motor user, including bearing sizes, service factors, and NEMA design type.

400-Amp Welder

Manufacturer: General Electric Co., Schenectady 5, N. Y.

Claims: A new 400-ampere, three-phase, DC, rectifier-type welder with a 60% duty cycle is designated as G-E Type WR40A. The new welder can be equipped to operate on a two-phase power and has a current welding range of 70 to 500 amperes. It can be utilized with a variety of electrode sizes for repair, maintenance, and construction work.

According to company engineers, the selenium rectifier welder makes it easy for operators to achieve current adjustments by means of a stepless current control. Quiet operation is a feature of the welder, and maintenance is simplified since the unit's side pieces are easily removed.

Instant arc welding is assured since there is no inductive time lag as usually found in motor-generator sets. Because of the high current produced by the six parallel-path selenium rectifiers in the new unit, stable arcs and resulting smoother welds are made possible.

Since there are few moving parts to wear out, maintenance expenses are reduced. Class H (silicone) insulation gives extra protection against high temperatures and is moisture, fume, and chemical resistant.

To further protect the coils and cool the rectifier stacks, a reversible 14-in forced-draft fan, rated for continuous service, provides proper ventilation and prevents hot spots. The cooling system

operates on an updraft principle, taking cool air near the floor and preventing the recirculation of exhausted hot air that is continually rising. The life of rectifier stacks can be prolonged by means of the self-cleaning action obtained through reversing fan operation.

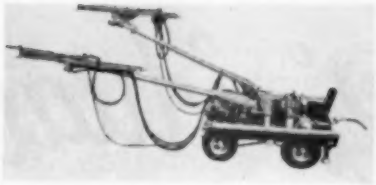
The new G-E welder is operable on 220/440 volts reconnectable to either voltage. It is also available with full-time arc force control which minimizes popouts and freezing-in.

The unit is 35-inches wide, 26-inches deep, 27-inches high over-all, and weighs 660 lbs.

Drill Jumbo

Manufacturer: Gardner-Denver Co., Quincy, Ill.

Claims: One operator can move into position with the new Gardner-Denver JSP Mobiljumbo and drill out a complete round in drift, tunnel, room, quarry, or rock cut—without leaving his seat on the jumbo carriage. Position-



ing of the booms and drills, as well as the complete drilling cycle, is handled by hydraulic controls conveniently grouped in front of the operator.

One lever on each side of the control panel raises or lowers the machine on jacks for stability while drilling. Another set of levers raises or lowers each boom independently, while other levers swing the booms laterally. Drills are positioned by hydraulic cylinders near the end of each boom, and these cylinders are also operated by levers at the control panel to move the drills through vertical and horizontal arcs. Drills can be positioned for down holes or up holes, as well as for horizontal holes. This feature makes it possible to equip the JSP for drilling roof bolt holes. All positioning is hydraulically locked and free from creeping.

The complete drilling cycle for each drill, including drill speed, feed pressure, hole cleaning and steel withdrawal —is also remotely controlled from the operator's seat.

Each set of side wheels is chain driven by an air motor, and the carriage can be steered by powering one set of wheels at a time. Where underground lighting is needed, the JSP Mobiljumbo can be equipped with an air motor driven generator. Various boom lengths are available for efficient drilling of faces up to 14 feet high. Face widths of 25 feet can be drilled off from a single setting of the drill rig.

Paving Joint Cutter

Manufacturer: Felker Manufacturing Co., Torrance, Calif.

Claims: First tests of a new production-type contraction joint cutter for Portland cement concrete paving have just been completed on the new Torrey Pines State Highway widening project near San Diego, Calif.

The new DI-MET machine has been specially developed for mechanizing contraction joint sawing and saving time on the job. Measuring 14-ft. 6-in. across with an eight-foot depth, the machine spans the slab. It is equipped with ball-bearing wheels and rubber tires and is so designed that it can ride either the

Continued on page 56

Dewatering 58 ft. deep bridge pier coffer on Cumberland River near Gallatin, Tenn. J. M. Hickman, Contractor.

4000 gpm...at only 1500 rpm

Jaeger builds longer life into small pumps, too.

When you can move 4,000 gallons of water a minute, with diesel fuel economy *and at recommended diesel engine speed*, that's low cost pumping. Ordinary pumps can't do it but a Jaeger 10PD can — because Jaeger Sure Prime pumps are built bigger, to prime and pump at slower speeds than others. It pays off in long engine and pump life — every time.

1½" to 10" — gas, diesel, electric. Catalog P-10.

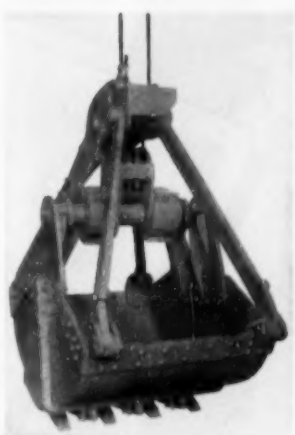
THE JAEGER MACHINE COMPANY 553 Dublin Avenue Columbus 16, Ohio

LOADERS • COMPRESSORS • MIXERS • PAVING MACHINES

It All Depends on the BUCKET AT THE END OF THE LINE . . .

The bucket is usually less than one-tenth of the whole investment in your materials handling equipment. Yet, to get all the pay load you should on every pass depends more on the bucket than on anything else.

To be sure you have the right bucket for the job, let our field engineers look over your set-up. There's no charge, and their recommendations will help you get the most out of a major investment.



Write for BULLETIN 405, Dept. E54

FORMERLY ERIE STEEL CONSTRUCTION COMPANY

ERIE STRAYER CO.

SAME PEOPLE • SAME PRODUCTS • JUST A NEW NAME

934 GEIST ROAD • ERIE, PENNSYLVANIA

RUGGED "Individuals

THAT'S THE BUCYRUS ERIE LINE OF 3/8 - TO 4 - YARD EXCAVATORS . . .

* **Each model** is *individually designed* all the way through from crawler treads to boom point sheaves for a definite size payload. Maximum stability and maximum strength are obtained without that extra weight which slows down the operating cycle or adds to power consumption.

That's because each part is built of tough special steels, developed especially for the individual duties involved. No parts are too small — strength is built in where you need it. No parts are too big — bulky deadweight is eliminated. This is Bucyrus-Erie *individual design.*

Because of *individual design* you can always be sure that your Bucyrus-Erie excavator will carry out the work it is rated for with speed, safety, and at low maintenance cost. Ask your nearby Bucyrus-Erie distributor to give you complete details. 16E53C

BUCYRUS-ERIE COMPANY

SOUTH MILWAUKEE, WISCONSIN

See Your Bucyrus-Erie Distributor

SHOVELS • DRAGSHOVELS • DRAGLINES • CLAMSHELLS • CRANES

New Equipment . . .

Continued from page 53

header boards of the new slab or ride one side on the headers, the other on a parallel existing slab. Conditions permitting, it can also roll directly on the green slab.

An "H" beam serves as a track across the slab and supports a traversing carriage upon which are mounted two (or

more) heavy duty spindles. Operation of the carriage is reversible, sawing being performed in either direction. The spindles operate simultaneously, each carrying a concrete blade which is lowered into the concrete and takes a six-foot traverse. The two cuts, being perfectly aligned, join up in the center of the slab, producing a 12-ft. long contraction joint. The joints are precisely made, of uniform depth, exceptionally sharp and free from ravelling on the edges. No offset occurs at the juncture of the two cuts.

Two 12-in. O.D. segmented type diamond concrete blades are used on this particular unit to make the two inch depth of cut. Variable depths of cut up to six inches can be obtained using different diameter blades for sawing contraction joints in airport runways and other similar projects. A six-inch depth of cut can be made with an 18 inch diameter blade. Each blade is driven by an independent 26 hp gasoline engine with its own battery and starter. A third engine of equal horsepower and equipment drives a three stage hydraulic pump. Individual hydraulic motors on the rubber tired wheels provide power for road travel.

Diamond wheel traversing speed is completely variable from up to about 25 fpm. Road speeds, moving from one cut to location of the next, are adjustable up to 75 fpm. Two pointer guides extend in front of the machine, two more occur under the beam for alignment purposes. Floodlights are provided for night work.

Water for cooling the diamond wheels is supplied from external sources and may be connected to either side of the unit, avoiding necessity of a hose crossing the slab. The water automatically turns on as diamond blades lower to cutting position or shuts off as blades retract. An auxiliary pump supplies pressure.

Diamond blades are rapidly lowered to a pre-set position, then eased into the concrete at a slow, gradual feed rate. Retraction is fast, the entire beam being lifted under hydraulic power. When blades clear the concrete, a safety lock engages preventing accidental descent and possible blade damage. As the machine is driven from one joint location to the next, the carriage traverses the beam ready for the following cut without loss of time.

Brake Fluid Dispenser

Manufacturer: Crystal Research Laboratories, Inc., 29 Allyn St., Hartford 3, Conn.

Claims: A faster and easier method for replacing fluid in hydraulic brake systems is one of the features of the new modern Crystalab Handi-Quick brake fluid dispenser. The Handi-Quick consists of squeezable polyethylene plastic bottle with transparent plastic feed tube and metal shut-off clamp.

To use, simply place end of tube in master cylinder opening—invert bottle and squeeze. Rate of flow is controlled by varying the pressure, and shut-off is made positive by hand operated clamp on tube. When not in use, dispenser is sealed tight, thus eliminating waste and accidental spillage—keeps fluid free from dust, moisture, and adulteration.

Another dispenser feature is the easy-to-read measurement scales (copyrighted) printed on the side of each translucent bottle. Liquid level shows against the upright scale to accurately indicate amount of fluid in bottle at all

times. When inverted, a second scale provides basis for estimating amount dispensed on each job. The dispenser is unbreakable. It is available in both quart and pint sizes.

Loader

Manufacturer: Lessmann Manufacturing Co., Des Moines, Ia.

Claims: New design improvements of all three models of the "Loadall" have just been announced by the manufacturer. The perforated grill and fabricated hood has been replaced with a cast grill with horizontal louvers. The design change offers greater protection for the front-end Vickers hydraulic pump assembly without sacrificing accessibility.

The HF-15 "Loadall" is 11½ inches longer and 1,200 lbs. heavier than the standard HF-10 and is equipped with full reversing transmission as standard equipment. On the HF-10 and the HF-5, full reversing transmission is

optional equipment. All three models may now be equipped with an all-steel, all-weather cab.

The HF-15 unit carries 13.00 x 24-8 ply grader type rear tires and 8.25 x 20-10 ply tires on the front. It is a ¼-yd. loader that may be equipped with buckets up to 1½-yd. capacity for handling of bulky materials. Optional equipment on the HF-15 includes Bendix Hydro-Vac brakes and Vickers Power Steering.

Crane-Excavator

Manufacturer: Bucyrus-Erie Co., South Milwaukee, Wis.

Claims: Special heavy-duty equipment for the Bucyrus-Erie 22-B ¾-yd. crane-excavator has been developed to widen safety factor margins and to increase machine life on the toughest crane, clamshell, and dragline operations.

The new heavy-duty 22-B, while basically the same machine as the standard model, has these additional features: A long frame crawler mounting which provides increased bearing area for improved traction in tough going, or exceptional stability and maneuverability

for fast dragline, crane and clamshell work; and a heavy-duty boom with added weight and strength to provide increased work load capacity.

When equipped for lifting crane service, the heavy-duty 22-B carries boom lengths from 35 feet (standard) to 70 feet (with removable inserts). Boom suspension is of the pendant type — lengths matching with boom inserts— with eight parts of operating line between bridle and boom point. Available as extra equipment for booms 40 feet or longer is a 16-part suspension (8-part multiplied by additional 2-part) with pendants, providing slower boom hoisting or lowering for even greater precision control.

For increased ease, safety, and efficiency of operation, the heavy-duty 22-B crane offers power controlled lowering on the main hoist line. In addition, hoisting and lowering of the boom is power controlled, fully independent of all other functions. With this combination, lowering control is so accurate that loads can be inched into position. Other important safety features are a friction swing brake (in addition to the regular swing lock), and boom stops of the telescoping pipe type.

When equipped for dragline or clamshell work, the heavy-duty 22-B carries booms ranging from 35 to 50 feet. Shovel and dragshovel front ends are not offered with this machine, but are still furnished with the standard Bucyrus-Erie 22-B machine and the 22-B transit crane.

Thread Repair Kit

Manufacturer: Heli-Coil Corp., 1476 Rock Lane, Danbury, Conn.

Claims: The new Thread Repair Kit No. 34CS is designed for use in repair shops of operating companies in construction, marine, mining, roadbuilding, and transportation operations. This repair kit contains an assortment of 25 inserts in each of four commonly-used sizes. All tools necessary for the wire insert method of thread repair—four Heli-Coil taps, four Heli-Coil inserting tools, and one Heli-Coil insert extractor—are included in the kit.

Recesses are milled into the wooden case to receive the inserts and the special tools. The case is fitted with a hinged cover which, when closed, prevents inserts and tools from being displaced, even if the kit is turned upside down.

A printed direction sheet glued to the inside of the cover gives full instructions for installation of the inserts. Photographs illustrate this thread repair method and a chart indicates the position of tools and inserts in the kit, giving names and Heli-Coil part numbers for convenience in reordering.

Time and cost savings up to 80% have been reported with the wire thread insert method of repair in comparison with conventional techniques—the oversized thread method, the build-up by welding method, and the solid bushing method. Threads repaired with wire inserts are stronger and more durable than original threads. Tests have proved they provide a minimum of 25% greater loading strengths in all materials and are more resistant to wear, vibration, seizing, galling, and corrosion.

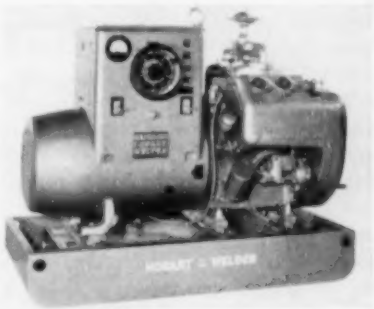
The Heli-Coil method of thread repair is a fast, simple, and permanent operation requiring three easy steps: (a) Drilling out the damaged threads, (b) Retapping with Heli-Coil taps, and (c) Installing the insert which brings the hole back to original size.

Because they are manufactured to diameters slightly larger than the hole and are installed under compression, these spring-like wire thread inserts are self-locking. No amount of vibration or screw tightening will loosen them. However, they can be quickly and easily removed with an extracting tool if this should become necessary.

Welder Power Plant

Manufacturer: Hobart Brothers Co., Troy, O.

Claims: A newly designed combination power plant and arc welder has



been designed with an eye to the needs of builders and contractors who depend upon electric power for many purposes.

The Hobart engineers have come up with a clever selector panel in conjunction with a standard control panel to make this machine a really versatile power unit. By removing only two wing nuts the selector panel can be moved to any one of three locations to provide 60 to 80 volts for welding, 110-volt power, or 220-volt power. After the selector panel is moved to the desired output marked on nameplate, the unit automatically provides the proper current characteristics for that purpose.

When used as a power unit, the gen-

Continued on page 58

RENT INTERLOCKING STEEL SHEET PILING
"FASTER from FOSTER"
ALL LENGTHS & ALL SECTIONS TO MEET ALL YOUR JOB NEEDS
Foster's lower rental rates on all standard piling sections give you a low fixed expense as an added competitive advantage when bidding on jobs. You can always count on reliable service! RENT: Pile Hammers and Extractors.
Write for New Piling Catalog EE3
L. B. FOSTER CO.
PITTSBURGH 30, PA.
NEW YORK 7, N.Y.
CHICAGO 4, ILL.
HOUSTON 2, TEX.

New Equipment . . .

Continued from page 57

erator will provide 110-volts, single phase, two-wire, 60 cycle alternating current or 220/110 volts, single phase, three-wire, 60 cycle alternating current. Power factor is 80%. Also available with 50 cycle output at slight extra cost.

When used as an arc welder with the output selector panel in welding position, it makes available 60 to 80 volts alternating current, with reactor in circuit to insure excellent welding characteristics. Current adjustment is accomplished by means of the large hand wheel on the control panel, which operates the main range switch of heavy copper moulded in bakelite. Volt-ampere adjuster is also located on the control panel.

The generator is powered by a Wisconsin four cylinder air cooled engine with magneto ignition or hand crank starting. It is equipped with a fly-ball type governor that maintains a constant speed of 1,800 rpm.

In this dual purpose machine you not only get a full capacity 200 ampere AC arc welder, but an AC power unit that will supply sufficient power to operate fifty 100-watt lamps (or their equivalent) regularly or as an emergency "standby" power source. The unit can also be used to operate electric drills, grinders, saws, hammers, compressors, paint sprayers, and other electric motor driven equipment.

Backfiller

Manufacturer: Cleveland Trencher Co., Cleveland, O.

Claims: The new Cleveland Model 190 is a fast, highly efficient backfiller under all types of project conditions on pipelines and heavy construction work; it is especially effective under the more rugged and difficult conditions—in mud, sand, and rocky soil, in swamps, and hilly terrain. Employing a big 7-ft. backfill board, the machine backfills as

it travels, providing continuous operation under one-man control.

Long, wide crawlers give the 190 an extremely low ground bearing pressure —6.2 lbs. psi—an advantage which can be capitalized upon to the maximum because of the backfiller's perfect balance. The modern crawler unit has double-rimmed sprockets, wheels and rollers—anti-friction bearing mounted —eliminating track packing and effecting greater stability. Over-all width of the new machine is eight feet, not including the boom. Fifteen feet in length and 9 ft. 10 in. in height, it weighs about 22,500 lbs.

The 190's transmission provides 48 crawler speeds from one foot per minute to 4.3 miles per hour in either direction. It is powered by a husky 467 cubic inch Diesel engine which develops 79 hp at 1,400 rpm.

Large, smooth handling hydraulic-actuated clutches with vacuum boosters give the operator complete control of the big smooth-casting scraper board.

Four separate transmission-controlled line speeds are available for both the pull-in and throw-out cables, ranging from 47 ft. to 450 fpm. The well-balanced 1,000-lb. board bites deep into the toughest spoil bank. Both boom hoist and tow winch are hydraulically operated.

The adjustable boom can be telescoped from 19 feet to 27 feet. It can be easily removed for 8-ft. hauling width. As a side crane the 190 has a 50,000-ft. lb. capacity figured from the edge of the crawler—10,000 lbs. five feet out, 5,000 lbs. 10 feet out. Its spring-cushioned winch drum hand brake provides steady control for crane work.

Simple levers ease Hinton operator's job. Hydraulic pressure comes from pump run by power take-off on the truck engine.

Crane . . .

Continued from page 31

of reeving between four sets of sheaves, with two sets stationary and two sets being extended by hydraulic rams. The system provides for 40 feet of line travel with only five feet of accounted for piston travel.

Since placing the machine in operation, Hinton has attracted the attention and interest of many inspectors and officials who are pleased with his record of careful and efficient handling, including the pipeline contractor and owner. But one recommendation stands out in Hinton's mind. It came from the pastor of a small church in Marshall located near the siding where the pipe was taken off flatcars.

"The preacher told me," Hinton recalls, "That we unloaded that pipe the fastest and with less noise and disturbance than he had ever known and he wanted to thank me on behalf of his congregation."

"That ex-dentist is one of the best maintenance men we've ever had."

Bucyrus-Erie 42-T blast hole drill goes down 92 feet on 35-ft. centers to help break up the Ewart Hill Deep sandstone.

Coal . . .

Continued from page 35

ft. boom; Ruston-Bucyrus, 2½-yd. bucket, 70-ft. boom; Lima 1201, 3½-yd. bucket, 85-ft. boom.

At the time of our visit the Link Belt was baring a bottom main seam while the 54-RB clawed out a pilot cut to the coal and the Lima slogged away on the heavy section.

Down at busy B Cut, where the Monighan walks, Euclids are in action, being loaded from a 30-ft. face by another Lima 1201 with 3½-yd. bucket. The resulting bench provides the walk for the Monighan.

The 12-yd. Euclids race up a sharply rising curve and dump over the highest point on the site, into the old cut. In attendance on them is Britain's Rolls-Royce engined tractor, the VR-180. It also serves as a cable-operated dozer with the Monighan and hauls LeTourneau scrapers.

While the Lima and companion diggers keep the Euclids on the move, the Monighan backfills sandstone overburden.

Raise Water 90 Feet

Across the hill, at the back of the Monighan, is the dewatering spot for

Continued on page 60

Now! FASTER DIGGING

Money saving, quick-changing *ESCO* Box Points and Adapters will cut your operating costs and speed production on big jobs and small.

BACKHOE

DIPPER

DRAGLINE

CLAMSHELL

TRACTOR LOADER

YARDAGE GOES UP! COSTS GO DOWN!

ESCO® Box Points and Adapters on your hoe bucket, dragline, dipper, clamshell, tractor loader and ripper make possible faster digging, at less cost, with minimum downtime. Heat treated and differentially hardened for shock and abrasion resistance, *ESCO* Box Points stay sharper, last longer and cost less than solid teeth. And *ESCO* Adapters outlast many changes of points. Correct adapter pitch results in higher digging efficiency.

With *ESCO* Adapters on your equipment, installing or changing points is a simple matter. Only 2½ minutes to remove and only 2½ minutes to install a set of 4 sharp *ESCO* Box Points. Downtime is all but eliminated.

ESCO Box Points are available in 6 point shapes (five different sizes, widths 3" to 7"), each designed for specific digging conditions. Now you can select the right point for maximum digging efficiency on any job. Your *ESCO* dealer can furnish these points and adapters for all makes and types of buckets.

ESCO®

Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Medford, Oregon; Salt Lake City, Utah. In Canada: Vancouver, B. C., and Toronto, Ontario.

ELECTRIC STEEL FOUNDRY CO.

2143 N. W. 25th AVE., PORTLAND 10, OREGON 712 PORTER ST., DANVILLE, ILL.

Early preparation for new cut at Chibburn is taking off topsoil as Cat D8 tractor hauling LeTourneau 12-yd. scraper is doing.

Coal . . .

Continued from page 59

the cut, where the cornered water is raised from 90-feet by Beresford submersible. The shaft is a 42-in. diameter concrete duct, and the encased pump is powered from a 37KV 440V 3-phase alternator driven by a 50-hp Albion engine. They are located on the ridge.

The pump discharges 10,000 gph into a dyke which empties into the North Sea.

Three coaling shovels have a clean, dry dig as they bear down upon the Monighan stripper. They are Ruston-Bucyrus machines — a 22-B and two 19-RB's giving a combined coal clearance of more than 200 tons an hour under thick-and-thin conditions that call for speedy, versatile diggers.

As *Excavating Engineer* left the site the booms of three more walking draglines appeared, far in the distance across the fields of Northumberland. They were tramping to yet another working place.

A Lima 802 shovel with 2½-yd. dipper loads overburden to a Euclid end dump. Monks worked some of seams in Middle Ages using underground shaft approach to the coal.

Yes, in England today with close Anglo-American cooperation in machines and methods the coal is coming forward in a steady black stream, to prove, without a doubt, that open-pit mining has its place under present emergency conditions in a traditionally deep-mine land.

Pipeline . . .

Continued from page 30

supervision of Clark Williams, Fulton's general superintendent who headquarters at Dodge City, Kans., where the firm maintains a large yard and sub-office. Williams heads the seven spreads which Fulton has active at the present time.

Assisting Tubby Boyd are C. L. Siewert, asst. supt.; Herman Rutledge, office manager; Burl Armel, master mechanic; Sam Parker, r/w supt.; Walter Lewis, ditch supt.; L. S. Zumwalt, stringing; Leon Walker, bending; Hubert Glen, welding; Harley Berkheimer, dope supt.; Merl Scott, tying in; and Ernest Torbeck, cleanup.

For El Paso Natural Gas Co., Jack Smith is employed as division superintendent, and Wayne Harris as chief inspector.

Second Spread Similar

Under ordinary circumstances, the 120-mile spread headed by C. A. Carrigan, spread superintendent, would make a pipeline saga in its own right. Carrigan, too, had rock. Up to 60% of his job was rock. But it was not as tough as the hard malapai at the top of the world on Boyd's spread.

Carrigan used the same good brand of organization, and his crews on one good day finished 267 joints 40 feet long, thus beating considerably the pipeliner's dream of a mile a day. Headquarters for Carrigan's spread was at Mountainair, with a sub-headquarters at Belen. Since Carrigan's right-of-way job

was not as tough as the other, four D8's did that work. Ditch equipment included five Bucyrus-Erie 22-B's, a Lima ¾-yd. backdigger, and three Northwest 25 backhoes.

He, too, used Gardner-Denver drilling equipment, including 14 wagon drills, five compressors in the 600-cfm size, two 500-cfm machines, and a small 210-cfm machine with two jackhamers for secondary shooting.

Trench digging equipment on this spread included two Cleveland 320's, a Buckeye 48, and two D7's and dozers for miscellaneous work. Carrigan used Ford trucks for stringing pipe, but his bender consisted of a D7 handling tractor and a CRC machine. His pipe crews used a pair of D7's with side booms, and four D8's with side booms were assigned to the dope gang. Four D8's with side booms also took care of the lowering in.

Rent Some Welders

Carrigan made use of a considerable number of rented welding machines in addition to his own company-owned equipment. He had three 300-amp. Lincoln welders for running his hot beads, and four large Lincoln Diesel-driven welders which also were assigned to the hot pass. Like Boyd's spread, the final beads were run by a 200-amp. machine. Cleanup was handled by a pair of D8's and a D7, all equipped with dozers.

Regardless of the spread, all of Fulton's pipeline operations are run with a close-knit, standardized organization. Clark Williams visits all seven spreads in several states. Each day, if he is close to a telephone, he talks personally with every spread superintendent. He knows intimately the details of every rock outcrop, every deep gully, and every tough spot for the installation of a valve. When he picks up the telephone and asks, "How much did you get today, Tubby?" or "Did you get across that deep gully, Carrigan?" production is uppermost in everybody's mind.

Williams dropped into Boyd's office while the notes for this article were being made, and in 30 minutes had placed calls to all spreads: two jobs in Oklahoma, one in Texas, his Dodge City office, and had spoken to Carrigan at Mountainair. It is day to day supervision like this, transmitted down through the superintendents and crew bosses, which makes for best efficiency.

The New Mexico job is but one segment of a major expansion program of El Paso Natural Gas Co., the largest it

Continued on page 63

STURDILITE

Heavy-Duty
FLOOD LAMPS

For Better Light • Longer Service • Lower Cost

Especially Designed for Efficient Service on

Shovels • Excavators • Drag-Lines • Roadbuilding Equipment Locomotive Cranes • Tractors . . .

Metal Spinning Division

PHOENIX PRODUCTS CO.

4723 N. 27TH ST. • MILWAUKEE 16, WIS.

Write for Illustrated Bulletin.

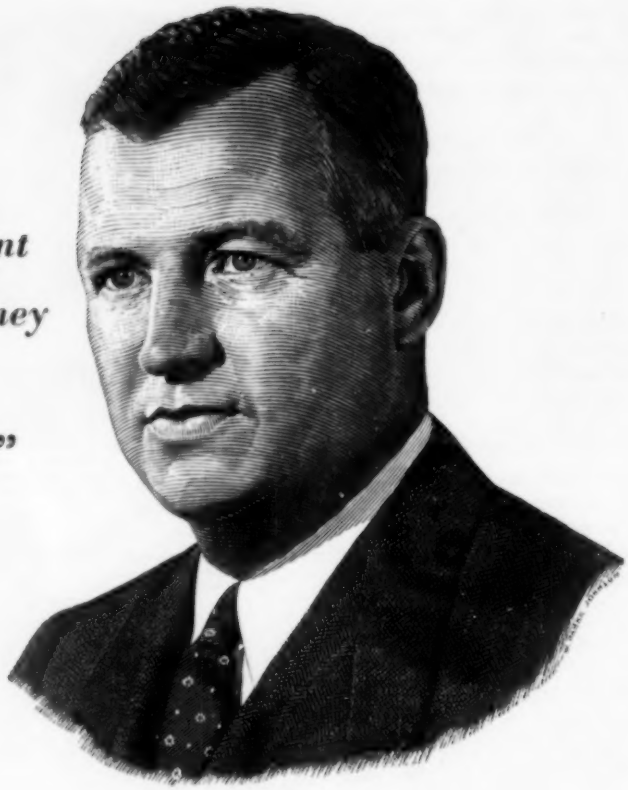
Pick A Money Maker

When you are trying to decide on the Dragline Bucket for your use, base your judgment on these 3 important points: (1) Digging Ability, (2) Long Life, (3) Low Repair Expense. For over 42 years Omaha Dragline Buckets have passed these tests in actual work accomplished in the field. Write for catalog giving specifications of 4 available types.

Of Course IT'S AN OMAHA DRAGLINE BUCKET

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

"Wise public debt management with its goal of sound money is of prime concern to every American."



MUNDY I. PEALE
President
Republic Aviation Corporation

"Wise public debt management with its goal of sound money is of prime concern to every American. Regular purchase of U. S. Savings Bonds contributes importantly to the achievement of this objective and, at the same time, helps assure our future security, individually and as a nation. We at Republic Aviation feel a deep sense of pride in the knowledge that 94% of all our employees became investors as a result of our most recent campaign and that $631,000 in bonds are purchased each month on our automatic Payroll Savings Plan."

Perhaps the importance of U. S. Savings Bonds and the Payroll Savings Plan as factors in wise debt management and the achievement of sound money may not have occurred to you.

Here are a few facts and figures:

• For every dollar of public debt held by a commercial bank, about five new dollars may be created in the form of credit. Obviously, the larger the amount of the public debt held by individuals, the greater the check on inflationary tendencies.

• At the end of 1953, the cash value of Series E and H Bonds *held* by individuals was more than 36 billion dollars. This total is growing steadily, thanks largely to the month after month purchases of Series E Bonds by more than 8,000,000 Payroll Savers.

• Sales of E and H Bonds in 1953—23% higher than in 1952—provided cash for *all* E and H Bond maturities and redemptions and still left over $210,000,000 *net* for the reduction of bank-held debt.

• The ownership of more than $36,000,000,000 in Savings Bonds by millions of Americans constitutes a reservoir of future purchasing power—an asset to industry and business as well as to the individuals who built it by their Bond-conscious thrift.

Why not team up with Mr. Peale and other leaders of industry in their efforts to help America reach its goal of wise public debt management and sound money? All you have to do is (1) show a *personal* interest in your Payroll Savings Plan. Get the figures on the percentage of employee participation and the amount of monthly savings by your employees. (2) Wire, phone or write to Savings Bond Division, U. S. Treasury Department, Washington, D. C. You'll get all the help you need to build up or install a Payroll Savings Plan that will reflect your company and its interest in America.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

Pipeline . . .

Continued from page 61

has ever undertaken. When construction of this big expansion is finished, the company will move through its pipeline facilities 2.2 billion cubic feet of gas per day. This figure includes up to 300 million a day on an exchange agreement with Permian Basin Pipeline Co., but does not include the sales of the Utah Natural Gas Co. nor field sales made in the Permian Basin.

El Paso's Big Application

Briefly, the story of this present expansion covers four different projects. An exchange agreement with Permian Basin Pipeline Co. will deliver gas to the Texas Panhandle for use by Northern Natural Gas Co. The Utah Pipeline Project will serve that state, and certain facilities authorized in 1951 and 1952 are nearing completion in the southwest.

The New Mexico job covered by this story is a part of "The 400 Million Case," largest of the four projects, and represents the largest single application made by El Paso Natural Gas Co. to the Federal Power Commission. When FPC granted the request, an increase of 400 million cubic feet per day was on the way, at a total cost of $175¼ million.

Immediately after receiving the green light from FPC, construction was started on the big job, which consists of 770 miles of 30-in. main transmission line, 60 miles of 24-in. transmission line, together with related gathering lines, purification plants, gasoline extraction plants, compressor stations, and other necessary facilities.

Principal facility of this project is the new 30-in. line which originates in the Permian Basin of west Texas and extends in a northwesterly direction across New Mexico to a point near Gallup. Here a junction will be made with the existing 24-in. mainline from the San Juan Basin. From this point west, the new line will loop the present San Juan line to a point near Kingman, Ariz. In addition, 60 miles of 24-in. loop line will be installed between the San Juan River plant and the junction with the new pipeline near Gallup.

New compressor facilities to be installed, partly through the enlargement of existing stations and partly through construction of new mainline stations and new field plants will total 161, 860 horsepower. This construction also is under way.

Departing from its usual procedure of doing its own work, most of the new pipeline is under contract by El Paso Natural Gas Co. Oklahoma Pipe Line Constructors are laying 150 miles of 30-in. pipe from the takeoff at Plains, Tex., to Corona, N. M. The 252-mile job featured in this article will take the line to Gallup. From Gallup, the Company's own pipeliners are laying 204 miles across Navajo Indian Reservation to a point near Flagstaff, Ariz. From there, Western Pipe Constructors, Inc. are completing 165 miles to Kingman. In addition, El Paso's own crews are laying the necessary gathering and field transmission lines in the Spraberry area of west Texas.

The big expansion program will increase gas deliveries to Southern California Gas Co., Southern Counties Gas Co., and Pacific Gas & Electric Co.

More Flexibility

Aside from increasing gas volumes, the new line will give El Paso Natural Gas Co. a flexibility of operation it has not had previously. By directly connecting the Permian Basin and the San Juan Basin through the new cross-over pipeline, the gas reserves from all sources of supply will be more easily available for delivery to all points of demand. When production of residue gas in the Permian Basin is low, the company will be able to draw heavily on gas reserves in the San Juan Basin. And when residue gas production is high in Permian Basin, it will be easy to curtail withdrawals from San Juan.

The job may have other implications, too, fully as interesting to archaeologists as the industrial aspects are to businessmen.

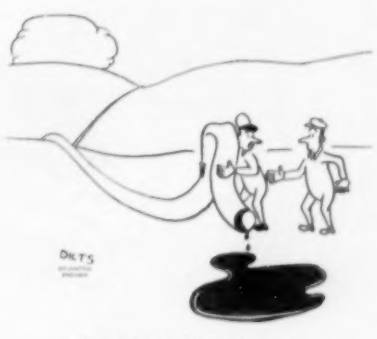
A thousand years ago, a great civilization was blooming in the American Southwest. This was the golden age of the Pueblo Indians, who lived in great multi-storied buildings in country traversed by the present pipeline. These people perfected a high level of architecture and ceramics. The Spaniards in 1540 found 80 inhabited towns. Great centers of community life had been developed previously at Mesa Verde and Chaco Canyon. These people built apartment houses before Columbus "discovered" America which surpassed anything in size built to about 1887.

Uncover History

In accordance with the 1906 Congressional Act for the Preservation of American Antiquities, El Paso Gas Company is maintaining two resident archaeologists on the job, and practically every foot of the line has also been gone over by Dr. Jesse L. Nusbaum, Senior Archaeologist of the National Park Service. Dr. Nusbaum is one of our nation's foremost archaeologists. He was a member of the expedition to Mesa Verde National Park in 1907. He has served all over the country in his capacity.

Many ancient village sites of the Pueblo Indians have been found as the pipeline work proceeded. Mealing bins, grinders, flints, and arrowheads have been unearthed. In 160 sites, archaeologists have found evidence of civilization dating back to the birth of Christ. Definite findings covering the Basket Makers, Modified Basket Maker, Developmental Pueblo, Great Pueblo, and Regressive Pueblo periods have been found.

But somewhere in the neighborhood of Belen, N. M., these historians hope to hit the jackpot, because evidence is believed to exist there of prehistoric man dating back from 10,000 to 20,000 years. If they can find it, and they believe they can, someday, today's excavating machinery will have spanned all those centuries of history.



"Run back and tell them to shut it off!"

NOT in the Contract

A sailor was telling a gray-haired old lady of all his harrowing experiences in the Korean war. She listened with bulging eyes as he described them. "One day," he went on, "I looked over the ship's rail just off the Korean coast, when I saw a torpedo coming straight for our ship . . ."

"My goodness," cried the old lady, "I do hope it was one of ours."

Stanley had taken a strong dislike to kindergarten. All persuasion failed, and finally his mother, in desperation, told him firmly he just HAD to go.

"All right," said Stanley, "if you want me to grow up into a darn bead-stringer, I'll go."

"I'm cutting quite a figure," said the chorus girl as she sat on a broken bottle.

Hubby: "It's funny, but the biggest fools marry the prettiest women."

Wife: "Oh, quit trying to flatter me."

The Italian composer went to see his doctor. After examining him the doctor said: "Your trouble stems from wine, women and song."

"Well, I can get along without the songs," suggested the composer, "since I compose my own."

"Which of the other two are you prepared to give up?" asked the doctor.

"That," replied the composer, "depends entirely on the vintage."

Patient: "Will this operation be dangerous?"

Doctor: "Nonsense. You couldn't buy a dangerous operation for just forty dollars."

First Operator: "You must have had a terrific night last night; your eyes are sure bloodshot!"

Second Operator: "You oughta see them from this side!"

"Well, that's what you say when you got troubles on your job!"

It was the teen-aged girl's second date with the ardently inclined boy. Before he let her out of the car in front of her home he pleaded for a good-night kiss and she said, "Have you ever kissed any other girls?"

With amazement on his face the youth replied, "Sure, I've kissed girls before I met you. You don't think I'd use you as a guinea pig, do you?"

She: "I would love to share your troubles."

Bachelor: "But I haven't any troubles."

She: "Oh, I don't mean now. I mean after we're married."

Bum: "Say, mister, will you give me 20 cents for a cup of coffee?"

Dumb: "OK, but don't you know that coffee is only a dime?"

Bum: "Sure, but I'm keeping a woman."

Six contractors on a fishing trip ran out of provisions and sent one of the party to a nearby town to shop. He returned with six bottles of wine, a case of beer, a bottle of whiskey, and a loaf of bread.

One of the group was heard to exclaim: "Good boy! You've even brought something for the birds."

"Doctor," she said loudly, bouncing into the office, "I want you to tell me frankly what's wrong with me."

He surveyed her from head to foot, then said, "Well, I've got just three things to suggest. First, you should take off about 40 pounds. Second, you'd look better if you used about half as much make-up. And third, you'd better go up one floor—that's where the doctor's office is. I'm an artist."

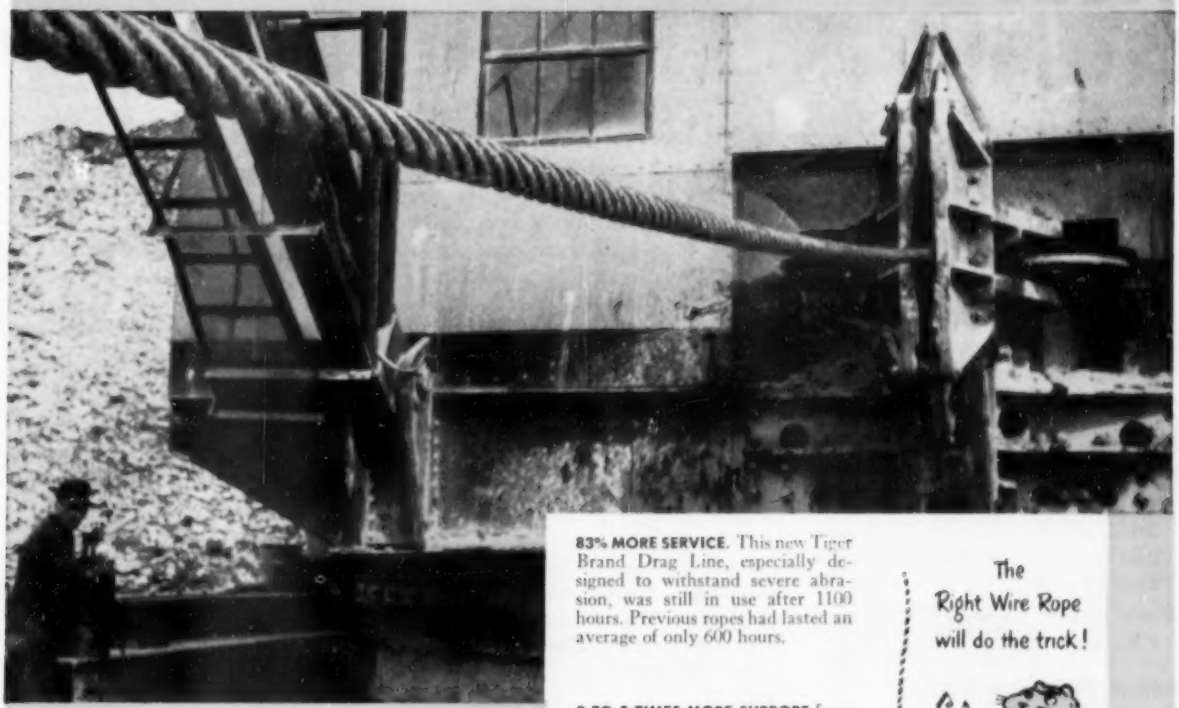
A convivial gentleman came weaving down the street. Finally realizing that further progress was impossible, he sank down on the curbstone.

About this time, a man from the city water department came along, and putting a long iron rod into a socket in the pavement he began turning it to shut off the water supply valve.

The inebriate regarded him dourly, "So you're the so-and-so," he muttered accusingly, "whosh turnin' the street 'round."

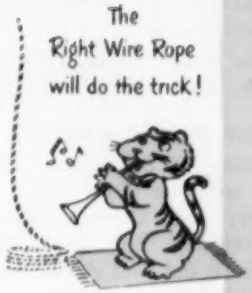
Cheering thought after shelling out to the tax collectors: We can be thankful that we don't get as much government as we pay for.

Look at these amazing Tiger Brand records!



83% MORE SERVICE. This new Tiger Brand Drag Line, especially designed to withstand severe abrasion, was still in use after 1100 hours. Previous ropes had lasted an average of only 600 hours.

2 TO 3 TIMES MORE SUPPORT from these Tiger Brand Boom Supports. Interwoven ends distribute vibration over a long section of the rope instead of letting it concentrate at one point. As a result, these ropes last longer and cut boom support costs as much as 50%.



• Tiger Brand Wire Ropes are designed for the particular type of job on which they are intended to work. They have the needed balance of strength, toughness, flexibility and wear resistance. The quality is carefully controlled, from the iron mines to the finished product, and by our *own* engineers. Rigid tests and inspections at every step of the way guarantee a rope that matches the design specifications.

In addition, we maintain a staff of experienced Wire Rope Engineers to advise customers the correct rope to use, so that they get the best rope for every job.

Consult these men the next time *you* need rope. They can help you get longer service and cut rope costs.

AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

New Trade Literature

Subject: **Chain**

Content: The conveying and power transmission equipment made by Chain Belt Co. for the forest products industry is described in a new bulletin. This new book is practically a manual on material handling in the lumber, pulp and paper, and allied industries. It is amply illustrated with photographs, drawings, diagrams, and flow charts, and is concerned with operations in saw mills, planing mills, chipping plants, pulp mills, softboard, hardboard, and plywood plants. The 44-page book illustrates and gives details of chains and allied equipment used by these industries. Request Bulletin 53-54.

Where to get: Chain Belt Co., Dept. P.R., Milwaukee 1, Wis.

Subject: **Excavator Film**

Content: *The Big Lift* is a 29-minute, 16 mm film which tells a dramatic story about the importance of the excavating equipment industry in general and Lima shovels, cranes, and draglines in particular. In compiling the on-the-job material for the color-sound film, the producer traveled an estimated 18,000 miles in a six-month period. *The Big Lift* contains good continuity and narration woven into a father-son plot. A limited number of copies are available for loaning to clubs, associations, and engineering and student groups.

Where to get: Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Sales Promotion Department, Lima, O.

Subject: **Trade School**

Content: A new pictorial booklet describing the curriculum and organization of the Hobart Trade School is being mailed free of charge by the registrant of the school. Courses offered include arc welding, carbon arc welding, alloy steels and cast iron, inert-gas-shielded-arc welding, hard facing, tool welding, stud welding, submerged arc welding, oxy-acetylene welding and cutting, and pipe welding. A non-profit organization and recognized by leading State and Federal Education authorities, the school is now operating under contract to the Veterans' Administration. However, its facilities are available to all.

Where to get: Registrar, Hobart Trade School, Troy, O.

Subject: **Logging Tools**

Content: An informative eight-page folder is designed to help logging men keep production costs in line. Called *New Tools for Loggers*, it describes and illustrates machines specifically designed to give the logger high speed with rugged power; two models of the Tournarch, and the Tournaskidder. In its two pages on the Tournaskidder in action, it presents it as a tool ideal for skidding and bullcooking, and calls attention to Tournarch features which result in faster swings at lower costs. The folder also pictures the ability of these tools to be interchanged with other trailing units which assure flexibility to handle the wide range of jobs in today's logging. Request Form No. G-1165-1053.

Where to get: Advertising Department, LeTourneau-Westinghouse Co., Peoria, Ill.

Subject: **Equipment Profit**

Content: Pit and quarry operators will be interested in a recent Caterpillar Tractor Co. publication which discusses the importance of "standardizing" equipment and how profits may be derived from such a move. The booklet, *Profit Builders in Pit and Quarry*, contains in its eight pages photographs of the complete line of Caterpillar equipment that is available to pit and quarry companies. Included are Cat Diesel engines, track-type tractor shovels, bulldozers, rubber tired earthmovers, motor graders, and four-wheeled scrapers in actual job applications in all parts of the U.S. Request Form D407.

Where to get: Caterpillar Tractor Co., Peoria, Ill.

Subject: **Tautline Cableways**

Content: A new 16-page catalog provides a comprehensive study of types, spans, working loads, and other details of tautline cableways. This three-color catalog illustrates cableway applications that will be of interest to construction and consulting engineers, public utilities, and industrial concerns. A diagrammed text presents an interesting and helpful insight into the mechanics of modern tautline cableways in the first part of the catalog. An exciting series of pictures shows cableways at work. The catalog illustrates how the cableway is largely dependent on its size and operating requirements. The erection of towers is also taken up. Sauerman Bros. provides either the complete tower ready for assembly or detailed plans for those wishing to have the towers built locally. The final section of the catalog is reserved for hoists and details.

Where to get: Sauerman Bros., Inc., Dept. E-23, 522 S. Clinton St., Chicago 7, Ill.

Subject: **Hardfacing Alloys**

Content: Amsco's complete line of hardfacing and buildup rods and electrodes are fully described in a new 48-page, two-color catalog just published. Typical applications are shown in more than 70 photographs and full metallurgical and physical properties are included for the four automatic and 15 manual rods and electrodes. There is also a complete technical section with charts and photographs which will help you select the correct hardfacing rod for those unusual or hard-to-solve wear problems.

Where to get: American Manganese Steel Div., 389 E. 14th St., Chicago Heights, Ill.

Subject: **Excavator**

Content: A new catalog describes the improved 15-ton lift capacity, ½ cubic yard dipper capacity 205 excavator. Well illustrated with 25 photos and diagrams and featuring brief, concise text matter, the catalog describes heavy-duty operating features of the 205 when equipped as a shovel, hoe, crane, or dragline. The unit is available either crawler mounted or on a truck body. Of special interest to the contractor who wants to move his crane equipment swiftly from job to job is the 205 truck crane with a new maximum road speed 32.6 mph. It has a 15-ton lift capacity, outstanding for a unit of its size and price. Ten forward and two reverse speeds are standard with the truck crane. It is designed to render maximum service whether equipped as a shovel, hoe, crane, or dragline. Oper-

ators who prefer the crawler model will find that the crawler sections need little maintenance. Crawlers are both self-cleaning and wear resistant. Shoe surfaces are smooth, free of dirt-collecting pockets, and have beveled outer edges. The 205's revolving turntable is held securely to the stationary carbody with hook rollers. Each of the four conical shaped hook rollers is adjustable and they resist tipping in either direction. They are mounted on non-metallic bushings. Attachments for the new model 205 are easily interchangeable and incorporate many improvements. In the shovel model, these include welded box type shovel boom, electric dipper trip assembly, shipper shaft rigidly mounted in deep midsection, and powerful cable crowd due to extra strength cables and large diameter boom sheaves. With hoe boom, the 205 will dig a maximum of 17 feet 9 inches below grade. The boom is a heavy duty box section type and the dipper pulls up tight to boom because the digging line is coupled close to the dipper through an equalizer. This feature reduces spillage. In clamshell service, the 205 crane can be easily converted to handle ¾ cubic yard buckets.

Where to get: Koehring Co. Sales Office, 3026 W. Concordia Ave., Milwaukee 16, Wis.

Subject: **Chains**

Content: A new catalog covers the line of Kenkrome replacement chains. The new 12-page catalog, Bulletin 1053, lists Kenkrome replacement chains for cement, sand, gravel, crushed stone, brick and clay plants, coal mines and preparation plants, and pulp and steel mills. Chains cataloged include the bar, 700 and 800 pintle, miscellaneous pintle, rivetless, bar link, detachable link, combination, drag and roller types. Also covered in the new bulletin are renewable tooth sprockets, crusher parts, dipper tooth points and bases, and crawler treads and idlers made from Supermang, Orcloy or Kenkrome.

Where to get: Kensington Steel Co., 505 Kensington Ave., Chicago 28, Ill.

Subject: **Wire Rope Service**

Content: Seventeen "life-saving" tips for improving wire rope service are given in a new folder entitled *How to Get More Work Out of Your Wire Rope*. Suggestions for correct handling and storing, and recommendations for proper use of rope are included. Reading matter is brief but pertinent; folder is highly recommended for all wire rope users and equipment operators.

Where to get: Leschen Wire Rope Division, H. K. Porter Co., Inc., 5909 Kennerly Ave., St. Louis 12, Mo.

Subject: **Job Study**

Content: A job study of a county highway department's operations pictures and describes many jobs and procedures which "Payloader" tractor-shovels regularly accomplish. Some of the jobs described are the loading of gravel from creek beds and pits, widening of roads, cleaning ditches, clearing land, loading "cold mix," hauling graders, changing truck tires and plowing snow. Request Job Study No. 22.

Where to get: Frank G. Hough Co., 708 Seventh St., Libertyville, Ill.

Subject: **Diesels**

Content: A new colored booklet has been issued to tell how *Cummins Cuts Contractors' Costs*. A feature of the publication is the lead article covering the building of the New York State Thruway. Text and illustrations show how Cummins Diesels are employed effectively on the job. The booklet also takes up other construction jobs around the country, such as the Folsom Dam project in California. Excellent photographs support the text.

Where to get: Cummins Engine Co., Inc., Columbus, Ind.

Subject: **Pneumatic Tools**

Content: Twelve page folder, illustrating and describing pneumatic tool accessories—such as moil points, clay spades, asphalt cutters, etc.—carbide rock-drill bits and drill steel lines has just been made available. Specifications covering all tools included, plus application information. Write for folder T-11-3P.

Where to get: Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill.

Subject: **Elevator Buckets**

Content: The new catalog No. 100 is now being offered to all dealers and users of elevating and conveying equipment. This 12-page catalog illustrates and gives all pertinent data and prices on the Standard line of steel elevator buckets.

Where to get: Standard Metal Manufacturing Co., Malinta, O.

Subject: **Loader**

Content: A colorful new catalog on the versatile Athey Force-Feed HiLoader is now available to equipment users. The well-illustrated eight-page booklet shows the HiLoader on a variety of applications and details the many features that give high production. Actual job data is presented to prove HiLoader performance.

Where to get: Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.

Subject: **Chain Hoists**

Content: A complete bulletin covering the full line of recently announced P&H chain hoists is now available. Printed in two colors and illustrating each type of hoist, the bulletin includes descriptions as well as condensed specifications. It covers all types of P&H hoists from ¼-ton up to 25-ton capacity. Request Bulletin H-32.

Where to get: Harnischfeger Corp., Hoist Division, 4400 W. National Ave., Milwaukee 16, Wis.

NOW! "TARPS" AT DEALER COST!

BURCH *Weather-Tite* TARPAULINS

Now for the first time you can get the QUALITY BURCH WEATHER-TITE TARPAULINS in all weights, at a new low price. You are invited to write in for our new price list . . . Simply submit your request on your letterhead and you will be eligible for our dealer price list. Compare the quality—Compare the workmanship—COMPARE THE PRICE and you will specify BURCH WEATHER-TITE!

BURCH MANUFACTURING COMPANY, INC.
FORT DODGE, IOWA DES MOINES, IOWA

Here the Hydrocrane excavates for a retaining wall. Boom reaches out for extra passes — without moving truck an inch! Quick-set outriggers provide outstanding machine stability . . . even permit the ⅜-yd. clamshell bucket to be handled with a flat boom, fully extended. Every crane function fully hydraulic. Travels up to 50 mph on open road. Simple hand levers — no foot brakes.

BUCYRUS ERIE

HYDROCRANE'S built-in reach grabs the "EXTRA-DOLLAR" jobs

Bucyrus-Erie Hydrocrane with hydraulically telescoping boom gives you 8 ft. more boom — right at your fingertips. This special extend-retract action means extra dollars in savings on regular jobs . . . extra dollars in profits on special jobs ordinary outfits can't handle. Look:

1. *On erection work* boom reaches between girders . . . hoists concrete buckets, planking, etc., to upper stories . . . saves hundreds of man-hours.
2. *On road work* telescoping boom reaches under branches, over obstructions while handling pipe, culvert, or levelling shoulders . . . moves material into tunnels and low underpasses . . . handles dozens of close-quarter jobs.
3. *On yard work* reaches into boxcars . . . over fences . . . between stockpiles to move material, load trucks, etc., in a hurry.

QUICK CONVERTIBILITY TO *HYDROHOE*

By actual stop watch test, crane has been converted to drag-shovel front end by one man in *less than one hour!* And on trenching, telescoping action of Hydrohoe boom cuts lost time moving up as much as 40 percent.

Get the full story on the all-hydraulic Hydrocrane with its many attachments.
SEND COUPON TODAY

Here the Hydrohoe starts a trench cut. Available with either 12- or 18-inch dipper—equipped with hydraulic ejector that kicks dirt out.

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Gentlemen: ☐ Please send me Hydrocrane literature.
☐ Please send me Hydrohoe literature.

Name.....

Company.....

Address.....

City..... State.....

46H53C

Notes from the Manufacturers

Atlas Powder Co., Wilmington, Del., has announced three changes in its San Francisco explosives sales district. Eugene F. Daily has been named district manager. He succeeds William T. Mahood who has been recalled to the Wilmington general office and a post in the contractors section of the explosives sales division. Harry E. Urben formerly of the Seattle office, has been named assistant manager of the San Francisco district. Daily graduated from the University of North Dakota in 1925 with a degree in Civil Engineering. He has 19 years' service in the explosives field with Atlas. Mahood graduated from Bucknell University and took extension work in Temple University's law school. He joined Atlas in 1936 and served as a salesman in the Houghton, Mich., district. He was in the contracting division till 1943 when he was named Seattle district manager. For the past seven years he has been the San Francisco district manager. Urben joined Atlas in 1920 and served as a salesman throughout the Chicago and Joplin, Mo., districts before being transferred to the Seattle office. One change was announced in the Seattle district. It has appointed John R. Nichols, salesman, sales agent with headquarters in Spokane, Wash.

Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Lima, O., has appointed W. D. Ellis manager of South American sales for Lima shovels, cranes, draglines, and pull-shovels. Associated with Lima since 1948, Ellis has a wide background in heavy equipment sales and service. For the past two years, he has served as export sales-service engineer for the company.

Baker Manufacturing Co., Springfield, Ill., has appointed Bert M. Constant assistant sales manager. Constant replaces George D. Phares, who has been appointed works manager of Baker's new Beardstown, Ill., plant, now under construction. In addition to other duties, Constant will be in charge of Baker's advertising department. Constant has been with Baker since 1941, serving in various capacities including head of the order department and as field man of the sales department. Constant is a veteran of World War II, having served as a Jump Master with the 101st Airborne Division in Europe. He was a German POW.

Blaw-Knox Co., Pittsburgh, Pa., has announced completion of its negotiations to acquire All Purpose Spreader Co. of Elyria, O., including the firm's well established line of highway construction equipment. With the acquisition of the APSCO line, Blaw-Knox now can furnish equipment not only for paving high type state highways or turnpikes with either concrete or asphalt, but for all types of highway construction and improvement, including road widening and the placing of stone base. Sales and distribution of the newly acquired All Purpose Spreader Company machines will be coordinated with other Blaw-Knox highway equipment. The road widener and base paver will be added to the Blaw-Knox line immediately, the former under the trade name Blaw-Knox APSCO Widener, and the latter as Blaw-Knox Base Paver. Other products acquired in the transaction will be offered to the trade at a later date.

Broderick & Bascom Rope Co., St. Louis, Mo., has constructed a new addition to its Houston, Tex., plant. The original Houston factory was constructed in 1950. Increasing activity in the oil and gas, construction, industrial, and marine fields has created demands that necessitated construction of the new plant facilities. The Broderick & Bascom expansion will provide additional warehousing facilities as well as a multi-purpose shipping department with modern docks and equipment.

Byers Manufacturing Co., Ravenna, O., a new corporation, has been formed to take over the business of The Byers Machine Company, also of Ravenna. This has entailed no change in management or policy, and is solely a transfer of assets to the new corporation. The Byers Manufacturing Co. will continue to build the same line of machinery that has been built in the past, and the activities of the new company will be increased and extended.

Caterpillar Tractor Co., Peoria 8, Ill., has announced that Henry H. Howard has been elected a vice president of the firm. In his new position, Howard's principal responsibility will be the administration of the Company's recently created engine division. Howard has been with the company 27 years, most of which have been spent in the sales management field. He served as director of sales from 1949 to August 1, 1953, when he was named manager of the engine division. While maintaining his administrative responsibilities at Caterpillar, Howard has twice served the nation in time of war. He was consultant to the tank and combat vehicle division of the US Ordnance Department from February 1942 to July 1943, and served for 13 months, beginning in December 1950, as consultant to the Department of the Army, G-4. A graduate of the University of California, Howard joined Caterpillar in May 1926, at San Leandro. He was an export representative in Australasia from 1928 to 1931, and then worked four years in the merchandise department and as assistant to the vice president in charge of sales. In 1935, he was named manager of the governmental sales division and, from 1937 to 1942, was manager of the engine sales department. He was general sales manager from 1943 to 1949.

Erie Strayer Co., Erie, Pa., is the new name for the forty-one-year-old Erie Steel Construction Co. According to management, the change was made because the old name was no longer indicative of its products. The Company hasn't fabricated structural steel for buildings for many years. The company has been making clamshell and dragline buckets, bins, AggreMeters, batching equipment, and overhead electric cranes almost exclusively.

Euclid Division, General Motors Corp., Cleveland 17, O., announces the appointment of Sierra Machinery Co., Inc., as a new distributor of Euclid earthmoving equipment in the state of Nevada. Sierra, whose headquarters are at 307 Morrill Ave.,

Continued on page 72

HIT the ACTIVE SPRING MARKET with an EQUIPMENT AUCTION!

A FORKE BROTHERS AUCTION insures BIGGER RETURNS MORE PROFITS

Avery Forke | Don Forke | Dean Forke | Herb Forke | E. W. Ficke

Sell early and you'll be certain of moving your equipment at top market prices when you let Forke Brothers plan an ACTION-filled AUCTION for you this spring.

Forke Brothers, with more than 30 years of experience, know how to locate and interest the buyers throughout the nation. That is proved by the fact that during 1953, they sold over 3,000 major pieces plus innumerable small pieces at top market prices.

Let Forke Brothers map you a PLAN of AUCTION to produce real, HONEST, honest-to-goodness ACTION. Successful sales demand careful planning, and Forke Brothers plan with experience.

Write, Wire or Phone for Complete Information
No Obligation

FORKE BROTHERS
The Auctioneers
321 Sharp Bldg. Lincoln, Nebraska Phone 2-1045

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES — 2½ YDS. & UP

2—9 W Monighans	12	c.y.
1—200 W Monighan	8	c.y.
1—5 W Monighan	6	c.y.
2—620 W Page	6	c.y.
1—1250 P&H Electric Shovel	2½	c.y.

Catalog of used equipment furnished upon request. Also a good stock of 43-B and 52-B Bucyrus-Erie parts.

J. A. TERTELING & SONS, INC.
Box 1428 Boise, Idaho

Bucyrus-Erie 320-B electric shovel, serial number 4957, mounted on Amsco shovel crawlers, operating on 4100 volts with Ward-Leonard control; equipped with 75 ft. boom, 54 ft. dipper handle and 12 cu. yd. bucket; machine can be inspected and is available immediately; good condition. Write, wire or phone the Pioneer Mining Corp., Appleton City, Missouri.

Page 625-S diesel walking dragline with 150 foot boom and 10 yard bucket; new in 1948; good operating condition; location Middle West. Box 3555

Marion 93-M shovel with 2½ cu. yd. dipper, diesel powered.
Northwest model 80-D, 2½ cu. yd. shovel; new in 1946.
Northwest model 80-D, combination shovel-dragline; new in 1945. Box 3561

Model 625-E Page Electric 9 cubic yard walking dragline, with 150 ft. boom, serial no. 178, located Central Ohio, machine working and in excellent condition; price: $130,000 net, loaded on cars; complete list of spare parts not included in price. Box 3551

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Lima 1201 combination shovel and dragline. Cummins diesel engine, 80' dragline boom. Location middle west; priced to sell. Box 3548

Model 8 Northwest dragline; 70 ft. boom high gantry. Box 3559

Koehring model 1005 diesel shovel, 2½ cu. yd. dipper. Delivered new 1949; located south central Missouri; immediate delivery. Box 3493

P & H dragline, 92' boom, 2½ yd. bucket, model 955, serial number 9675, powered by Caterpillar D17000 engine. Price: $21,000. Box 3562

Bucyrus-Erie model 38-B, 1½ cu. yd. Diesel shovel; excellent condition. $30,000.

Bucyrus-Erie 43-B 1¼ yd. shovel and crane combination, 50 ft. boom, Buda diesel engine; good operating condition. $17,750.

Garwood model 625 scraper 24.5 cu. yds. heaped capacity on four 24.00x29-24 ply tires, 85% new throughout; cost new $18,500, our price $8000.

H. O. PENN MACHINERY CO., INC.
140th St. & East River
New York 54, N.Y.
Mineola, L.I. Poughkeepsie, N.Y.
Newington, Conn.

Bucyrus-Erie 10-B serial #17408, shovel backhoe, crane boom and clamshell; excellent operating condition. $6000.

Ransome 6S cement mixer $800. Legg, Tannersville, Green Company, Tannersville, New York, Phone: 343.

10-B Bucyrus-Erie dragshovel, serial number 64054, 1948 model, first class; price: $4750.
Shovel front, 15-B, almost new; price: $800.
D-13000 Caterpillar power unit with outboard bearing, perfect, less than 300 hours; price: $300.
Machinery & Supplies Co., Inc., 2000 Walnut Street, Kansas City 8, Missouri.

80-D Northwest shovel, serial #8610, equipped with either standard dipper or a 3¼ or 3½ cubic yard coal loading dipper; this machine now working as coal loader and in A-1 condition; price: $29,500 f.o.b. cars New Lexington, Ohio. Box 3556

Bucyrus-Erie 10-B shovel, gasoline, crawler mounted, rebuilt.
Northwest model 80-D 2½ yd. shovel; Murphy Diesel engine; rebuilt.
Furnival Machinery Company, 54th & Lancaster Avenue, Philadelphia 31, Pa.

Dragline Bargain: Manitowoc crane-clamshell model 2000, 1¼-1½ yd., Diesel motor; 80 ft. boom, 20 ft. jib, long crawlers; excellent condition; used very little; priced for immediate sale. P. K. Duval, Inc., Logan, Iowa.

Northwest model 25 dragline with 1 yd. bucket, 40' boom, long crawlers, 28" pads, 4 yrs. old, very good condition, serial in 11,700 series, location near Chicago. Box 3563

MISCELLANEOUS EQUIPMENT

Model 110 Cleveland trencher; practically new; used only two months. Box 3558

Kohler light plant complete; 4KW, 5KVA; used only a short time; will sell for ¼ original cost.
New TB4A Hyster crane for Hyster D-4 towing winch: adjustable crane boom; considerable discount on new price. Hash Construction Co., 702 West Geyser, Livingston, Montana.

B-Monighan walking draglines, 3 to 12 yds.
Whirley portal gantry cranes, elec. & steam.
Locomotives, 7 to 70 tons; 75-ton S/L derrick.
Cat DW-10 wagons (3), 1946, bottom dump.
Telsmith 26" gyratory crusher, steel frame.
P&H 1055LC dragline, 90' boom, 4-yd. bkt.
Northwest 95 diesel dragl.-crane, 95' boom.
Manitowoc 4500 diesel dragline; also shovel.
Marion 151-M, 111-M and 93-M shovels.
Bucyrus 42-T blast hole drills (2), 9" bits.
Diesel-elec. generators, 1000, 556, 392 KW.
Marine diesel engines, 320, 950, 1600 HP.
Bucyrus 20" electric hydraulic dredge.
Bucyrus 2½ yd. shovel front att., 52B-55B.

H. Y. SMITH COMPANY
828 North Broadway Milwaukee 2, Wis.

International TD 18 tractor with bulldozer blade.
Caterpillar D7 tractor with LeTourneau double drum P.C.U. bulldozer blade; rebuilt, reasonable.
Caterpillar D8 tractor with LeTourneau P-C hydraulic blade.

FURNIVAL MACHINERY COMPANY
54th & Lancaster Ave. Phila. 31, Pa.
5105 Paxton Street Harrisburg, Pa.
Water Street New Phila., Pa.

Bucyrus-Erie #12 bit dresser; purchased new in 1951; has never been used; electric driven with 20 horsepower 3 phase, 60 cycle, 440 volt; equipped for dressing 8" or 9" bits, joint size 3¼"x4¼"-7API; equipment for dressing other sizes available from manufacturer; immediate shipment. Contact: Mr. Norman Armentrout, Dewey Portland Cement Company, Davenport, Iowa.

New equipment parts for sale: Northwest, Marion, Koehring, Byers, International tractor, including lagging and fairleads, shovel fronts, shovel teeth, sheave blocks, etc., liberal discounts; we will pay the freight; also Euclid and Conway mucker parts, some Bucyrus-Erie; I-R wagon drill parts. Jack Palo Equipment Company, Azusa, California, phone: Edgewood 4-2551.

American hoists: gasoline, double drum — 57 H.P., single drum — 18 H.P. and 36 H.P. Air compressors, 105-210-315-500 cubic feet. Box 3560

Duo-way scoop, planetary drive, 1 yd. bucket with blade; very reasonable. Box 3557

Complete dragline equipment including 90 ft. boom, less bucket removed from Bucyrus-Erie 100-B, serial #23067, price: $5000. Morrison-Knudsen Company, Boise, Idaho.

POSITION WANTED

Superintendent available. 30 years experience and qualifications, covering all types of construction here listed; highways, airports, large sewers, water & gas lines, heavy and light excavating, know cost and modern equipment; honest, sober and reliable; West, Middle-West or Southern location. Box 3554

Available as operator on any shovel, crane or dragline; would prefer a Bucyrus-Erie, Koehring or Northwest; can rebuild or repair all makes of construction machines, except tractors; 35 years experience; honest, sober, reliable, married; willing to go anywhere; have spent three years in South America. If interested contact: George Stammer, 306 Fort Howard Avenue, West DePere, Wisconsin. Phone: Edison 6-8062.

Notes . . .

Continued from page 69

Reno, is an established machinery house well equipped to provide complete sales and service facilities. The firm is headed by J. D. Burgess who has been active in the construction equipment field for many years. Territory covered by Sierra for Euclid consists of all of Nevada with the exception of White Pine, Elko, and Clark Counties adjoining Utah and includes a number of counties in California adjoining Nevada to the west. These are the entire counties of Modoc, Lassen, Alpine, and Mono, and those portions of Plumas, Sierra, Nevada, and Eldorado counties lying east of Highway 89. District representative for Euclid in the area is H. P. Behl.

Eutectic Welding Alloys Corp., Flushing, N. Y., has named Fred F. Roehll, vice-president in charge of sales. Roehll formerly held the position of national sales manager. Roehll joined the corporation in 1946 and was appointed national sales manager four years later. Born in Ohio and a graduate of Ohio State University, he has been in sales and sales management all his life. He will continue to make his headquarters at the corporation's head office at Flushing and will direct sales throughout the US and Canada.

Findlay Division, Gar Wood Industries, Inc., Wayne, Mich., has appointed Highway Equipment & Supply Co., Harisburg, Pa., a distributor of Buckeye ditchers, spreaders, finegraders, and Hi-Way wideners. . . . . Mattoon Division of Gar Wood Industries, Inc., has appointed A. E. Hickman Company, Ltd., St. John's Newfoundland, Canada, a distributor of Gar Wood dozers, scrapers, and control units. Hickman Company will distribute for Gar Wood in the Province of Newfoundland.

"You'll have to see the boss about your draglines! As far as I'm concerned, your line drags!"

Goodman Manufacturing Co., Chicago, Ill., has acquired from Diamond Iron Works, Minneapolis, Minn., its line of crushing, screening, and handling equipment for rock, sand, and gravel. Operating as Diamond Iron Works, Division Goodman Manufacturing Company, manufacturing will be transferred to the Goodman main plant located at 4834 South Halsted Street, Chicago. Key personnel of Diamond concerned directly with sales, engineering, and service will be retained under the direction of Carl E. Hanson, sales manager and W. Eckley, chief engineer, who will make Chicago their headquarters.

Heil Co., Milwaukee, Wis., has appointed Roland Karste district sales manager of its Detroit district office. Karste succeeds the late Fred W. Ehlert, long a familiar figure on the Detroit selling scene, as manager of the office. Ehlert passed away November 23, 1953 while attending a Heil sales meeting near Milwaukee. Body and hoist and road machinery sales were handled by Roland Karste while a representative of the Heil Chicago district office. Before coming with Heil, Karste was president and manager of a soft drink firm for five years. Previous to this he held the position of sales manager of a food products firm located in Chicago. The Detroit district office handles national account and distributor sales of Heil truck bodies and hydraulic hoists and petroleum and stainless steel tank equipment in the entire state of Michigan except for the upper peninsula which is covered from the Milwaukee district office.

International Harvester Co., Chicago, Ill., has opened a new motor truck district sales office in Lubbock, Tex. The new sales facility serves about 125 International motor truck dealers and four company-owned International motor truck sales branches located in west Texas, eastern New Mexico, and the most south-westerly portion of Oklahoma. The opening of Harvester's district sales office will mark the second company operation to be established here. An International motor truck retail sales branch was opened here in January 1952. R. H. White, formerly motor truck district sales manager at Tulsa, Okla., has been appointed manager of the new district sales office at Lubbock. He will be assisted by M. S. Howard, former assistant manager of the company's Sweetwater, Tex., district sales office. Both men are Harvester sales veterans.

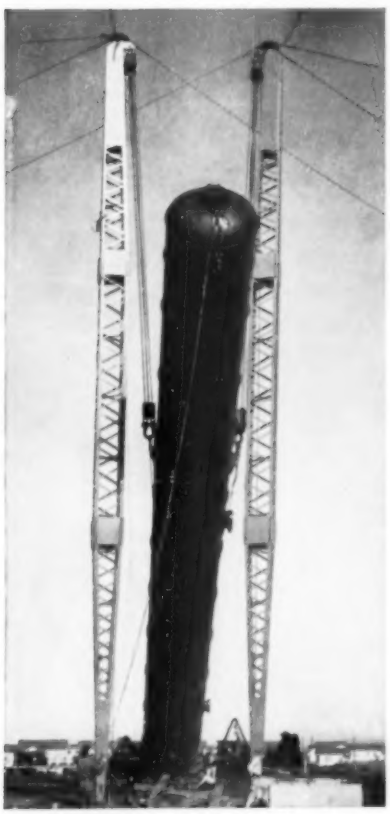
Koehring Co., Milwaukee, Wis., has appointed Gil Boers Equipment Co., Inc., 7625 S. Kedzie, Chicago 29, Ill., distributor for Koehring and two lines of subsidiary equipment in northeastern Illinois and some counties in northwestern Indiana. One of the largest construction equipment distributors in the Midwest, the Chicago firm is headed by Gilbert S. Boers. John C. Westlake is the treasurer. Sales Manager Tom Griffin heads a staff of 10 field salesmen. The Chicago firm will handle the full line of Koehring equipment including excavators, mixers, longitudinal finishers, pavers, Dumptors, and Mud-Jacks. In addition, it will distribute Parsons trenchliners and Trenchmobiles and Kwik-Mix Moto-Bugs and mixers. Complete service will be offered on all equipment sold.

Wooldridge Manufacturing Co., Sunnyvale, Calif., has appointed Arrow Contractors Equipment Co., Chicago, Ill., as the exclusive dealer for Wooldridge earthmoving equipment throughout northern Illinois, and Indiana counties of Lake, Porter, and La Porte. With headquarters at 4646 S. Kedzie Ave., Arrow Contractors Equipment Co. is equipped to offer complete modern shop and field service to owners of Wooldridge earthmoving equipment. The Chicago firm is headed by C. C. Riordan, president; Bernard O'Rourke, sales manager; George O'Rourke, service manager; O. C. Leffler, shop foreman; and G. K. Brown, office manager. Arrow Contractors Equipment Co. represents such other nationally known manufacturers as Unit Crane & Shovel Corp., The Jaeger Machine Co., Minneapolis-Moline Co., C. S. Johnson Co., and Huber Mfg. Co.

Multiple-part Red-Strand Slings are always trusted to handle heavy loads. They are easy to apply to both the load and the crane hook. User tests in Detroit proved Red-Strand slings withstood unusual abuse, yet maintained higher-than-rated strength.

A Gary plant uses Red-Strand single-part slings for many lifting jobs like this. These slings are available with various combinations of end fittings for attaching the sling to rings or lugs. Single-part slings frequently are the most economical to use.

How to Select the Correct Sling for Your Job



A heavy cylindrical load like this usually calls for the use of multiple-part Red-Strand Flat-Laced slings. They are strong, flexible and do not slip or abrade on smooth round surfaces.

Start your sling selection by analyzing five factors:

1. The load—its size, weight, shape, finish.
2. Working area, amount of head room.
3. Size and type of crane hook.
4. Angle of sling legs.
5. Location and type of lugs or rings, if any.

This is basic information. From it, your supplier can recommend the sling by type, size and length that is safest, longest lasting and most economical for your job.

Types of Slings

Multiple-part slings are always recommended for heavy duty service, because for equal strength they are far more flexible than single-part slings. They hug the shape of the load easily, present a greater bearing surface to the load, and reduce the possibility of marring finely finished surfaces.

Where these factors are not so important, either Red-Strand ***single-part slings*** or ***grommet slings*** may be used for economy. Single-part Red-Strand slings are often recommended for lifting lighter weight objects, or those that have fixed attaching rings or lugs. Grommet, or continuous strand Red-Strand slings are ideal for forming hitches of various types without fittings.

How to Gain Extra Savings

Two suggestions will help you save money on slings.

Re-useable Pin-Lock thimbles reduce sling costs by 21%

The first is to re-use Pin-Lock thimbles on multiple part slings. They increase sling life by protecting loops from abuse or damage. Besides, these exclusive Leschen Pin-Lock thimbles cut sling costs on an average of 21% because they may be used again and again. They lock into sling loops with pins instead of permanent clamps, permitting re-use, and eliminating constant expense of thimble replacements.

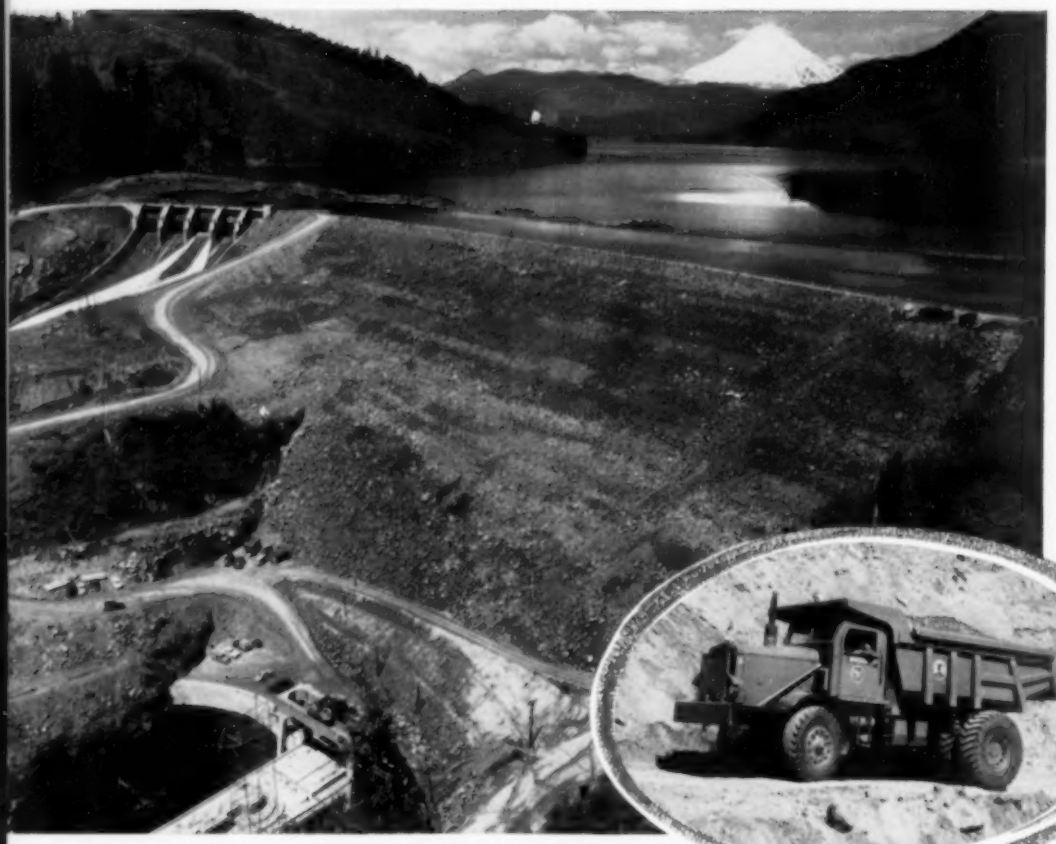
The second suggestion is to use Red-Strand slings—for a very simple but good reason: Red-Strand slings are made of ***higher-than-rated*** quality Leschen wire rope that delivers ***longer-than-expected*** service.

Get a copy of Leschen's ***Sling Handbook*** for complete information. Ask your Leschen man for one, or write.

LESCHEN WIRE ROPE DIVISION
The Watson-Stillman Company
(A SUBSIDIARY OF H. K. PORTER COMPANY, INC.)
St. Louis 12, Missouri

LESCHEN
HERCULES Red-Strand
WIRE ROPE

"Eucs" on every major dam in the *Pacific Northwest!*



Albini Falls
Anderson Ranch
Bliss
Box Canyon
Cabinet Gorge
Canyon Ferry
Capilano
Chief Joseph
Dalles
Detroit
Dexter
Hungry Horse
Kenney
LaJoie
Lookout Point
Lucky Peak
Upper Malad
Lower Malad
McNary
O'Sullivan
Palisades
Ross
Upper Salmon
Lower Salmon
C. J. Strike
Tiber
Waneta
Yale

Yale Dam of Pacific Power & Light Co. in Washington built by Morrison-Knudsen Co., Inc.

Euclid equipment is just as prominent on hundreds of other earth moving jobs all over the world!

Men who plan and build the big projects know what an advantage it is to have earth moving equipment that's dependable and gets the job done faster and at lower cost. That's why you'll find "Eucs" on practically every earth moving job . . . airports, dams, roads, mine and quarry operations, and industrial work.

In the Pacific Northwest, for example, Euclids have been standard equipment on all of the large storage, irrigation, power, and flood control dams built during the past ten years. Large fleets of "Eucs". . . over 500 Bottom-Dumps, Rear-Dumps and Scrapers . . . moved tremendous tonnages.

On many of these jobs a million or more yards of heavy excavation had to be moved over steep grades and long, tough hauls. Penalty clauses made it imperative that contract deadlines be met regardless of weather and other adverse conditions. The rugged dependability of Euclid equipment has been an important factor in keeping these projects on or ahead of schedule.

When you need large capacity, high speed earth moving equipment, check with any Euclid owner. You'll find that "Euc" performance has paid off by moving more loads per hour at more profit per load . . . and it can do the same for you.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

EUCLID THE PIONEER

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

GM GENERAL MOTORS